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ABSTRACT

The purpose of this research was to determine if disadvantaged children in general prefer one particular method of learning word recognition tasks and if the learning methods preferences of disadvantaged children differ significantly from the learning styles of nondisadvantaged children. From 529 second graders, 20 disadvantaged children and 20 nondisadvantaged children were randomly selected and administered the Mills Learning Methods Test. The data were analyzed through a two-way analysis of variance. Results showed that for all subjects the visual method was the most effective and the kinesthetic method was the least effective. Nondisadvantaged children performed significantly better than disadvantaged children on all four methods (visual, phonics, kinesthetic, and combination). No best method for teaching word recognition to disadvantaged children was found. On all four methods, the white subjects performed significantly better than the Negro subjects, and the female subjects performed significantly better than the male subjects. Related literature was reviewed, and characteristics of the disadvantaged children, the school role, and the Mills Learning Methods Test were discussed in detail. Tables, appendixes, and a bibliography are included. (AW)

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THE EFFECTIVENESS OF FOUR METHODS OF TEACHING WORD RECOGNITION SKILLS TO CHILDREN FROM DISADVANTAGED AND NON-DISADVANTAGED FAMILIES

by

Jo Ann Dauzat

B.A., Northwestern State College, 1965
M.A., Northwestern State College, 1966
Adv. M. Ed., The University of Mississippi, 1968

A Dissertation

Presented to the Faculty of the Graduate School of

Northeast Louisiana State College

In Partial Fulfillment

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U. S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Jo Ann Dauzat, Ed.D.
Northeast Louisiana State College
Monroe, Louisiana
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The major purposes of the investigation were to determine whether or not disadvantaged children learn more effectively from one particular method of teaching word recognition skills, and to determine if the effectiveness of methods of teaching word recognition is significantly different when presented to disadvantaged and non-disadvantaged children.

The second grade students in the public schools of Lincoln Parish, Louisiana, were divided according to socio-economic status. A random selection of twenty disadvantaged children, those whose family income is $3,000.00 per year or less, and twenty non-disadvantaged students, those whose family income is in excess of $3,000.00 per annum, was made from 529 second grade students in the parish. The researcher administered the Mills Learning Methods Test, which includes teaching and testing procedures for visual, phonic, kinesthetic, and combination methods of presenting word recognition skills, to each of the forty subjects individually. The obtained data were analyzed through a two-way classification analysis of variance, Lindquist Type I Design. The subjects were divided according to both race and sex and additional analyses were made, employing the same design.

The following are results of the statistical analyses and conclusions which are based on the analyses.

The visual method for presenting word recognition tasks was significantly more effective than either the phonic or kinesthetic methods, regardless of the socio-economic status, race, or sex of the subjects. The combination method was significantly better than the kinesthetic method. The visual method appears to be the most effective for teaching seven-year-old children to learn new words, while the kinesthetic method appears to be the least effective method with that age group.

Non-disadvantaged children performed significantly better than disadvantaged children on each of the four learning methods. Children of adequate means tend to learn more new words in a given length of time than do disadvantaged children, regardless of the method by which they are taught.

The results indicated no best method for presenting word recognition tasks to disadvantaged learners as a group. Disadvantaged students do not appear to have a learning style for word recognition which differs from the style of non-disadvantaged children. Those methods of instruction which are effective with non-disadvantaged learners should also prove effective with disadvantaged learners.

The performance of white subjects on the Learning Methods Test was significantly superior to that of Negro subjects. Negro students tend to perform less efficiently with word recognition tasks than do white students, regardless of the method by which they are taught.

No one method was found to be significantly more effective for Negro subjects than for white subjects. Even though Negro students tend to perform more poorly than do white students when presented with word recognition tasks, they seem to learn through the same methods of instruction.

Female subjects achieved significantly higher scores on each of the four methods than did male subjects. Male students tend to perform with less efficiency on word recognition tasks than do females, regardless of the teaching method.

The results of the study indicate that the learning styles of disadvantaged students do not differ as much as has been suggested by various authors. The specific socio-economic, sex, and racial characteristics of students do not appear to influence the methods of word recognition to which learners will respond most readily and most effectively.

TABLE OF CONTENTS

CHAPTER PAGE

I. INTRODUCTION 1

The Problem 1

Purpose of the Study 1

Importance of the Study 2

Definitions of Terms 3

Disadvantaged Children 3

Non-disadvantaged Children 3

Limitations of the Study 3

Research Questions 3

II. REVIEW OF RELATED LITERATURE 5

Definition of the Disadvantaged 5

General Characteristics of the Disadvantaged 6

Perceptual and Linguistic Factors and Learning Styles 9

Teaching Methods and Learning Styles 11

The Role of the School 13

Use of the Mills Learning Methods Test 16

III. THE RESEARCH PROCEDURE 19

Selection of the Research Sample 19

Division into Groups 19

The Research Sample 20

CHAPTER PAGE

Limitations Imposed on the Sample 20

Grade Level of the Sample. 21

Collection of Data. 22

Administration of the Mills Learning Methods Test 22

Description of the Mills Learning Methods Test 23

Randomization of the Order of Presentation 24

Description of the Testing Procedure. 25

Record for the Mills Learning Methods Test 26

Period of Time for Testing 26

Absent Subjects 26

Purposes and Hypotheses 27

Statistical Procedures 28

Additional Analyses 28

IV. PRESENTATION AND ANALYSIS OF DATA 30

Presentation of Data 30

Description of Subjects 30

Statistical Analysis of Data 35

Analysis of the Effects of Learning Methods 38

Statistical Differences Between Mean Scores on the Mills Learning Methods Test 38

CHAPTER PAGE

Effects of Grouping Subjects According to Socio-economic Status 38

Statistical Difference between Mean Scores for Disadvantaged and Non-disadvantaged Students 42

Interaction of Learning Method with Socio-economic Status 42

Effects of Grouping Subjects According to Race 46

Statistical Difference Between Mean Scores for Negro and White Subjects 46

Interaction of Learning Methods and Race 46

Effects of Grouping Subjects According to Sex 51

Statistical Difference Between Mean Scores for Males and Females 51

Interaction of Learning Methods with Sex of Subjects 51

Comparison of Data by Socio-economic Status, Race, and Sex of Subjects 51

Discussion of the Results of the Study 58

Characteristics of the Sample Influencing the Results 58

CHAPTER PAGE

Sex Factors Influencing the Results 58

Discussion of Age Factors 59

Discussion of Findings Regarding Word Recognition Methods 59

Discussion of Findings Related to Socio-economic Status of Subjects 60

The Visual Method and Implications for Disadvantaged Students 60

The Phonic Method and Implications for Disadvantaged Students 61

The Kinesthetic Method and Implications for Disadvantaged Students 62

The Combination Method and Implications for Disadvantaged Students 63

Discussion of Findings Relative to Race 63

Explanation of Equal Variance for Between Subjects when Analyzed Either by Socio-economic Status or Race 63

Implications of Results for Both Races 64

Discussion of Findings Relevant to Sex of Subjects 65

CHAPTER PAGE

Difficulties Encountered with the Testing Instrument 65

V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS 67

Summary 67

Conclusions 69

Recommendations 72

BIBLIOGRAPHY 75

APPENDICES 81

APPENDIX A. Record Form for Learning Methods Test 82

APPENDIX B. Frequency Distribution of Scores on the Learning Methods Test by Socio-economic Groups 83

EXHIBIT I. Frequency Distribution of Scores on the Visual Method by Socio-economic Groups 84

EXHIBIT II. Frequency Distribution of Scores on the Phonic Method by Socio-economic Groups 85

EXHIBIT III. Frequency Distribution of Scores on the Kinesthetic Method by Socio-economic Groups 86

EXHIBIT IV. Frequency Distribution of Scores on the Combination Method by Socio-economic Groups 87

APPENDIX C. Frequency Distribution of Words Taught by Socio-Economic Level, Race, and Sex 88

CHAPTER PAGE

EXHIBIT I. Frequency Distribution of Primer Level Words Taught by Socio-economic Level, Race, and Sex 89

EXHIBIT II. Frequency Distribution of First Grade Level Words by Socio-economic Level, Sex, and Race. 91

EXHIBIT III. Frequency Distribution of Second Grade Level Words by Socio-economic Level, Sex, and Race 95

EXHIBIT IV. Frequency Distribution of Third Grade Level Words by Socio-economic Level, Sex, and Race 99

LIST OF TABLES

TABLE PAGE

I. Number and Percentage of Males and Females by Socio-economic Groups 32

II. Number and Percentage of Males and Females by Racial Groups 33

III. Number and Percentage in Racial Categories by Sexes for Both Socio-economic Groups 34

IV. Race and Socio-economic Status of the Sample by Sex 36

V. Frequency Distribution of Ages by Socio-economic Groups 37

VI. Summary of Analysis of Variance of Effects of Teaching Methods on Disadvantaged and Non-disadvantaged Learners 39

VII. Results of _t_ Tests Between Specific Pairs of Means on the Mills Learning Methods Test Disregarding Socio-economic Status, Race, and Sex 41

VIII. Mean Scores on Each Learning Method and Differences Between Disadvantaged and Non-disadvantaged Groups as Determined by _t_ Tests 44

LIST OF FIGURES

FIGURE PAGE

1. Effects of Learning Method Disregarding Socio-Economic Status, Race, and Sex 40
2. Effects of Learning Method on Disadvantaged and Non-disadvantaged Learners 43
3. Effects of Visual, Phonic, Kinesthetic, and Combination Learning Methods Presented to Disadvantaged and Non-disadvantaged Learners 45
4. Effects of Learning Method on Negro and White Subjects 48
5. Effects of Visual, Phonic, Kinesthetic, and Combination Learning Methods Presented to Negro and White Subjects. 50
6. Effects of Learning Method on Male and Female Subjects 53
7. Effects of Visual, Phonic, Kinesthetic, and Combination Learning Methods Presented to Male and Female Subjects. 55

CHAPTER I

INTRODUCTION

One of the most urgent and complex tasks confronting educators is the provision of appropriate educational opportunities for disadvantaged children. The problem becomes more severe as the disadvantaged school population increases.

Reading skill is one basic component of success in other academic areas. However, under typical reading programs offered in the schools, the majority of the disadvantaged children do not master the reading task.[1] Although reading programs for disadvantaged children have mushroomed throughout the United States, only the surface of the problem of providing basic instruction in reading tasks has been penetrated. It seems evident that unless measures can be taken to make the process of learning to read more appropriate for disadvantaged children, these children will be doomed to failure in other academic areas.

THE PROBLEM

Purpose of the study. The study was designed to determine whether or not disadvantaged youth in general prefer one particular method of learning word recognition tasks. Another aspect of the study involved determining if the word recognition learning preferences of disadvantaged children differ significantly from the learning styles of non-disadvantaged children.

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[1] Gertrude Whipple and Millard H. Black, Reading for Children Without--Our Disadvantaged Youth (Newark, Delaware: International Reading Association, 1966), p. 12.

Importance of the study. Since reading ability is a prerequisite for success in other content fields, the schools must provide reading programs which will produce mature readers. In the past, the reading programs have failed a majority of the disadvantaged children. Deutsch found that by the time children from disadvantaged homes reach junior high school, 60 per cent are retarded in reading from one to four years.[2] It has been suggested that one reason for the gross inefficiency is that the school curriculum stresses instructional strategies which are in direct contrast to cognitive styles preferred by disadvantaged children.[3]

It seemed reasonable to assume that if the learning method most appropriate for disadvantaged children could be determined, the first battle in providing a better educational program for disadvantaged children would be won. If the method by which disadvantaged children can best learn word recognition skills could be determined, the findings would have far-reaching effects in the provision of appropriate reading programs for disadvantaged children. Furthermore, a more efficient reading program promises to result in increased academic performance in many other curricular areas.

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[2] Martin Deutsch, "Nursery Education: The Influences of Social Programming on Early Development," The Journal of Nursery Education, III (April, 1963), 195.

[3] Preparing Teachers of Disadvantaged Children (Austin, Texas: Southwest Educational Development Laboratory, 1968), p. iv.

DEFINITIONS OF TERMS

Disadvantaged children. The term was used to refer to children whose families earn an annual income of \$3,000.00 or less. The income bracket coincides with the definition of poverty maintained by the Council of Economic Advisors.[4]

Non-disadvantaged children. The term referred to all children whose family income is in excess of \$3,000.00 per annum.

LIMITATIONS OF THE STUDY

The study was limited to the second grade pupils of Lincoln Parish, Louisiana. The participants of the study were further restricted to those pupils for whom socio-economic data were available. Consequently, those pupils who had entered the Lincoln Parish schools for the first time during the fall of 1969 were omitted in the sampling procedure unless their school records had been previously received by the school which the students were attending.

RESEARCH QUESTIONS

Based upon the theory that disadvantaged youth have different learning styles from non-disadvantaged children, the basic research questions were as follows. Is it reasonable to assume that disadvantaged children have preferences for methods of learning word recognition skills which are not coincident with non-disadvantaged children? Do disadvantaged children as a group perform better with reading tasks when taught by any one reading method? Are individual differences in preference for different reading methods more significant with non-disadvantaged children when compared with disadvantaged children? Do disadvantaged children learn word recognition tasks more efficiently through visual, kinesthetic, phonics, or combination methods?

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[4] Economic Report of the President Together with the Annual Report of the Council of Economic Advisors (Washington, D. C.: Council of Economic Advisors, 1964).

CHAPTER II

REVIEW OF RELATED LITERATURE

Although much research concerning the disadvantaged child has been conducted, 82 percent of the studies were addressed to the necessity of changes within the disadvantaged child himself. The need for societal change was the topic of 10 percent of the existing research. However, only 8 percent of the studies related to the needed changes in the schools, either in methods or curriculum. Therefore, it appears that little emphasis has been in the direction of the needed modifications of the schools.[5] Those few studies which do exist dealt with evaluation of specific enrichment and demonstration programs. These studies usually failed to define the particular methods which appeared successful with disadvantaged children.[6]

DEFINITION OF THE DISADVANTAGED

Current literature is replete with such terms as culturally disadvantaged, culturally deprived, socially disadvantaged, socially deprived, educationally disadvantaged, and educationally deprived. In many instances, the terms are used for variety rather than for distinctions in their basic meaning. Reissman uses the terms interchangeably to refer to the members of the lower socio-economic groups.[7] Kaplan maintains that regardless of the arbitrary term which is use to apply to the impoverished groups, they exhibit two characteristics--lower socio-economic status and deficiency in cultural strength. The second characteristic is usually a consequence of the first factor.[8] Schwab contends that the common denominator for the low scoring, low achieving children who are termed disadvantaged is a depressed socio-economic environment.[9]

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[5] Doxey Wilkerson, "Prevailing and Needed Emphasis in Research on the Education of Disadvantaged Children and Youth," The Disadvantaged Child: Issues and Innovations, eds. Joe L. Frost and Glenn R. Hawkes (Boston: Houghton Mifflin Co., 1966), p. 278.

[6] Ibid., pp. 282-283.

GENERAL CHARACTERISTICS OF THE DISADVANTAGED

Reissman described the following as characteristics of the disadvantaged:

1. Relative slowness at cognitive tasks
2. Apparent preference for learning through physical and concrete approaches
3. Apparent anti-intellectualism
4. Reliance upon tradition and superstition
5. Acquaintance with a male-centered culture

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[7] Frank Reissman, The Culturally Deprived Child (New York: Harper and Row, Publishers, 1962), p. 3.

[8] Bernard Kaplan, "Issues in Educating the Culturally Disadvantaged," Phi Delta Kappan, XXIV (November, 1963), 70.

[9] Herbert M. Schwab, et al., Race and Equal Educational Opportunity in Portland's Public Schools (Portland, Oregon: Board of Education, Mullnomah School District No. 1, 1964), p. 72.

6. Lack of flexibility in beliefs
7. Alienation from the larger social structure
8. Tendency to blame others for personal misfortunes
9. Deficiency in auditory attention and interpretative skills
10. Inefficient reading ability and deficiency in communicative skills in general.[10]

Crow and his co-authors reported that disadvantaged children have inadequate cognitive powers and require a kinesthetic approach to learning.[11] They described the typical learning style of deprived children as follows.

1. Physical and visual rather than aural
2. Content-centered rather than form-centered
3. Externally oriented rather than introspective
4. Problem-centered rather than abstract-centered
4. Inductive rather than deductive
6. Spatial rather than temporal
7. Slow, careful, and patient.[12]

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[10] Reissman, op. cit., p. 124.

[11] Lester D. Crow, Walter I. Murray, and Hugh H. Smythe, Educating the Culturally Disadvantaged Child (New York: David McKay Company, Inc.), pp. 84, 122.

[12] Ibid., p. 185.

Other characteristics of the disadvantaged were discussed by Metfessel. He contended that disadvantaged children learn more readily by inductive than by deductive approaches; and therefore, discovery techniques would be ineffective. He found disadvantaged children to be symbolically deprived, to have poor attention spans, and to need to see concrete applications of what is learned.[13]

Reissman contended that the whole style of learning of disadvantaged groups is not set to respond to oral or written stimuli. He stated that disadvantaged children respond more readily to visual-kinesthetic signals.[14]

Several authors found that disadvantaged children show little or no retardation in immediate memory span and ability to master tasks involving rote learning. These two characteristics seemed to be the main learning strengths of the disadvantaged.[15] Bereiter and Englemann interpreted the phenomenon as involving tasks which do not rely on previously learned concepts. They contended that the performance of disadvantaged children on immediate memory span and rote learning tasks approximates the demonstration of raw ability to learn. The authors concluded that the disadvantaged child lacks learning itself, and not the fundamental capacity to learn.[16]

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[13] Newton S. Metfessel, Unpublished research, Center for the Study of the Education of Disadvantaged Youth, University of Southern California, 1964, as found in Millard Black, "Characteristics of the Culturally Disadvantaged Child," The Reading Teacher, XVIII (March, 1965), 465-470.

[14] Frank Reissman, "The Overlooked Positives of Disadvantaged Groups," The Disadvantaged Child: Issues and Innovations, op. cit., p. 55.

[15] I. J. Semler and I. Iscoe, "Comparative and Developmental Study of the Learning Abilities of Negro and White Children Under Four Conditions," Journal of Educational Psychology, LIV (1963), 40; A. R. Jensen, "Learning Ability in Retarded, Average, and Gifted Children," Merrill-Palmer Quarterly, IX (1963), 138.

PERCEPTUAL AND LINGUISTIC FACTORS AND LEARNING STYLE

Several authors suggested that the learning style of students is a function of their early linguistic environment. Bernstein contended that those pupils whose environment is restricted in linguistic code tend to develop a perceptual orientation which might partially account for a preference in regard to word recognition. He maintained that such pupils develop a perceptual orientation to content--a function of the learned ability to respond to the boundaries of an object. However, elaborate linguistic code environments tended to produce an orientation to structure--a function of the learned ability to respond to an object as perceived in terms of its relationship to other objects.[17]

Fantini and Weinstein found that restricted linguistic codes dominate lower socio-economic strata while middle and upper strata maintain an elaborate code.[18] In agreement with Bernstein's sociolinguistic theory, the authors stated that the restricted code users depend upon their immediate perceptions, which, consequently, limit their ability for abstraction and reduce inductive and deductive thinking.[19]

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[16] Carl Bereiter and Siegfried Englemann, Teaching Disadvantaged Children in the Preschool (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1966), p. 5.

[17] Basil Bernstein, "Sociological Determinants of Perception," British Journal of Sociology, IX (1958), 160.

[18] Mario D. Fantini and Gerald Weinstein, The Disadvantaged: Challenge to Education (New York: Harper and Row, Publishers, 1968), p. 103.

In comparing the psycholinguistic abilities of lower-class children of Anglo-American, Latin-American, and Negro descent, Webb found that inadequate auditory discrimination is a characteristic of lower-class children regardless of their line of descent.[20] Stephenson studied the psycholinguistic abilities of first grade children from lower socio-economic families. He found that children from lower socio-economic strata were more adept in visual decoding.[21]

In her study of language patterns of first grade Negro students, Brown detected evidence that the linguistic habits of the culturally disadvantaged Negro hinder his reading skill development.[22] Cohn suggested that the reading difficulties of the disadvantaged school population may be an effect of a kind of cognitive style that makes for less effective functioning in the school environment.[23]

In their controlled observations of disadvantaged Negro preschool children, Bereiter and Englemann noted that these children tend to treat sentences as expanded words. They found that the children lacked the basic understanding of discrete words.[24] They suggested that the disadvantaged child's inability to treat words as discrete units may handicap him in learning to read, since the reading task initially involves discrete word units.[25]

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[19] Ibid., pp. 50-51.

[20] Patricia Kimberly Webb, "A Comparison of the Psycholinguistic Abilities of Anglo-American, Negro, and Latin-American Lower-Class Preschool Children," Dissertation Abstracts International, XXIX (April, 1969), p. 3352A.

[21] Bobby Lynn Stephenson, "A Study of Sex and Race Variables and Psycholinguistic Abilities of Lower Socio-Economic Status First Grade Children," Dissertation Abstracts International, op. cit., p. 3475A.

[22] Virginia Louise Brown, "Language Pattern Interference in Oral Reading of Selected Urban Negro First-Graders," Dissertation Abstracts, XXIX (December, 1968), 1817A.

[23] Marvin Lester Cohn, "Field Dependence-Independence and Reading Comprehension," Dissertation Abstracts, XXIX (August, 1968), 477A.

TEACHING METHODS AND LEARNING STYLES

Within the past decade some relevant studies emerged which indicated a relationship between personality and effective teaching methods.[26] Only limited research was conducted which treated teaching methods and different learning styles.

Bruininks undertook a study to determine whether matching teaching methods to auditory and visual perceptual strengths of second and third grade disadvantaged boys would facilitate their learning of unknown words. On the basis of their performance on six auditory tests and six perception tests, he divided the 104 students into two groups, a strong visual but weak auditory group and a strong auditory but weak visual group. The children were taught fifteen unknown words by a phonic method, with the teaching procedures being taken from the Mills Learning Methods Test. He concluded that there was a trend toward higher performance with the visual method irrespective of the child's perceptual abilities. Therefore, the pupils learned to recognize unknown words equally well under teaching procedures which matched either their perceptual strengths or perceptual weaknesses.[27]

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[24] Bereiter and Englemann, op. cit., pp. 34-35.

[25] Ibid., p. 274.

[26] D. E. P. Smith, et. al., "Reading Improvement as Funcation of Student Personality and Teaching Method," Journal of Educational Psychology, XLVII (1956), 47.

Wooden studied the effectiveness of three different approaches to the teaching of reading to disadvantaged first grade students who were Spanish-speaking. The reading methods included a basal approach, a linguistic approach, and a linguistic approach in combination with a perceptual and cognitive development program. None of the approaches produced significantly higher gains in reading achievement.[28]

In an attempt to differentiate the learning styles of disadvantaged, average, and privileged junior high school students, Brown found that disadvantaged students were lowest of the groups on inductive reasoning tests. However, he found no statistically significant difference in the patterns of ability among the three groups. He concluded that learning styles may not vary as widely as some authors conjecture. He suggested that the instructional failings with disadvantaged students may be symptomatic of basic instructional deficiencies with all students, but that out-of-school influences of children other than the disadvantaged allow them to overcome the instructional deficit.[29]

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[27] Robert Henry Bruininks, "Relationship of Auditory and Visual Perceptual Strengths to Methods of Teaching Word Recognition Among Disadvantaged Negro Boys," Dissertation Abstracts International, XXX (September, 1969), 1011A.

[28] Sharon Lee Anderson Wooden, "A Study of the Effectiveness of Three Approaches to the Teaching of Reading to Spanish-speaking Disadvantaged Pupils in the First Grade," Dissertation Abstracts International, XXX (October, 1969), 1475A.

THE ROLE OF THE SCHOOL

If education seeks to modify the behavior of the disadvantaged child, the target of change must be the schools themselves.[30] It seems that the curriculum and methods used by the schools stress instructional modes which are incompatible with the cognitive styles of disadvantaged youth.[31] The current method of dealing with the educational deficit of the disadvantaged child, compensatory education, has been accused of aiming at the wrong target. The compensatory education program implies that there is nothing wrong with the traditional educational program, rather there is something wrong with the disadvantaged learners.[32]

Ausubel reported the possibility of arresting and reversing the course of intellectual retardation of the disadvantaged child if the school would offer that child optimal learning opportunities from the onset of formal education. He stated that an effective strategy would insure that the initial learning material was geared to the learner's existing readiness, that children had mastered one task before the introduction of new tasks, and that structured materials be used widely.[33]

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[29] Oliver Robert Brown, Jr., "An Examination of Some Parameters That May Differentiate Learning Styles of Disadvantaged, Average, and Privileged Junior High School Students," Dissertation Abstracts International, XXX (September, 1969), 1010A.

[30] Proposed Program to Improve Education of Negro Pupils in Louisiana and Texas, Addendum, (Austin, Texas: Regional Program Planning Group for Negro Education, Southwest Educational Development Laboratory, (February, 1967), p. 4.

[31] Preparing Teachers of Disadvantaged Children, loc. cit.

[32] Fantini and Weinstein, op. cit., p. 255.

Deutsch agreed that the development of the typical academic retardation found among disadvantaged children could be forestalled if the schools would initiate appropriate programs before academic retardation begins.[34]

According to Cummings, the most important discovery of research on disadvantaged youth has been that these pupils have the capacity for learning, but that they have their own ways of learning which differ from those of middle-class students.[35]

Edwards maintained that the failure of disadvantaged students represents the failure of the schools to present the curriculum in a manner compatible with the learning style and background of the disadvantaged child. He suggested modification of the instructional approach rather than a change in curriculum.[36] Smith also advocated a different instructional approach for teaching disadvantaged children.[37]

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[33] David P. Ausubel, "A Teaching Strategy for Culturally Deprived Pupils: Cognitive and Motivational Considerations," The School Review, (Winter, 1966), 459.

[34] Deutsch, op. cit., p. 194.

[35] Howard H. Cummings, "Conclusions," Program for the Educationally Disadvantaged (Washington, D. C.: U. S. Department of Health, Education, and Welfare, 1962), p. 101.

[36] Thomas J. Edwards, "Cultural Deprivation: Ideas for Action," Forging Ahead in Reading, ed. J. Allen Figurel (Newark, Delaware: International Reading Association, 1968), p. 359.

In her discussion of the inadequacies of most reading programs in helping disadvantaged students, Whipple stated that the only avenue taken in the development of more appropriate instruction for disadvantaged children was the provision of multicultural materials.[38] Brown admonished the schools for failing to recognize that the mechanics of word perception and work attack skills cannot be isolated from conceptual involvement. She maintained that since reading is a cognitive process, each pupil's mental style must be explored and methods must be based upon the findings.[39]

The successful educational program would be one which is determined by the child, his cultural milieu, and his learning style.[40]

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[37] Mildred Beatty Smith, "Reading for the Culturally Disadvantaged," Reading Instruction: Dimensions and Issues, ed. William K. Durr, (Boston: Houghton Mifflin Co., 1967), p. 178.

[38] Gertrude Whipple, "Multicultural Primers for Today's Children," The Disadvantaged Child: Issues and Innovations, op. cit., p. 301.

[39] Judith Brown, "A Rationale for the Teaching of Reading to Disadvantaged Children," Improvement of Reading Through Classroom Practice, ed. J. Allen Figurel, (Newark, New Jersey: International Reading Association, 1968), p. 168.

[40] Agenda of the Board of Directors, (Austin, Texas: Southwest Educational Development Laboratory, 1967), p. 3s.

USE OF THE MILLS LEARNING METHODS TEST

The research methods and conclusions of some authors appeared to have special significance for the development and implementation of the present research design. The following research was of particular importance in the formulation of hypotheses and in the development of appropriate plans for statistical analyses in the present study.

Mills used thirty-nine boys and nineteen girls in second through fifth grades of public schools in one Florida county. The subjects were divided into nine classifications for purposes of treatment. The classification variables included sex, chronologiacl age, reading level, and intelligence. His Learning Methods Test was administered to each subject in order to determine the teaching method most effective for teaching word recognition to various types of individuals.[41] However, he limited his study to children of the white race.[42]

He used an analysis of variance design to determine whether or not significant differences in the mean scores of the different groupings did exist. He used unequal numbers of cases, but with a minimum of five subjects for each cell.[43]

Mills reported that his study showed conclusively that different children learn to recognize words more effectively by different teaching methods. No one method was best for all children. Mills also found that for children of low intelligence, the phonic method tended to be least effective and the kinesthetic method was best, but no significant differences were noted. Children of average intelligence seemed to perform most poorly with the kinesthetic method, but no statistical difference was found. Children of high intelligence tended to learn words equally as well, regardless of the teaching method. Seven-year-old children appeared to learn most effectively through the visual approach and least effectively through the kinesthetic method. The other two methods tended to be neither effective nor ineffective with the seven-year age group. For eight-year-old children, Mills found the kinesthetic method to be significantly better than the phonic and apparently better than the other two methods. With nine-year-old children, no one of the four methods was outstandingly effective or ineffective.[44]

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[41] Robert Mills, "An Evaluation of the Techniques for Teaching Word Recognition," Readings in Reading: Practice, Theory, Research, eds. Delwyn Schubert and Theodore Torgerson (New York: Thomas Y. Crowell Co., 1968), p. 310.

[42] Ibid., p. 312.

[43] Ibid., p. 313.

Coleman studied students retarded one to ten years in reading. He administered the Mills Learning Methods Test to his subjects. Again, socio-economic status of the students was not a pertinent factor. He reported five major findings, none of which was statistically significant. He found, first, that underachievers did not prefer any one method. Second, the kinesthetic method was not better than the other three methods. Third, intelligence was unrelated to preferred method. Fourth, age was unrelated to the method preferred. Fifth, observable differences were in favor of the visual and combination methods.[45]

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[44] Ibid., p. 314.

The study conducted by Bruininks did incorporate socio-economic status as a relevant factor. However, his subjects consisted of only disadvantaged Negro boys. On the basis of auditory and visual perception tests, he divided his subjects into a strong visual group and a strong auditory group. He taught each child fifteen unknown words by a visual method and fifteen unknown words by a phonic method. He used the Mills Learning Methods Test, visual and phonics sections, as the teaching and testing procedures. His major finding was that the disadvantaged Negro boys tended to perform best when taught by a visual method, regardless of their strong mode of perception.[46]

Arnold reported a study in which he used the Mills Learning Methods Test as the instructional model for disabled readers who were adjudged delinquents. Since the age of the students ranged from eleven to sixteen years, Arnold used a word list more difficult than the one provided in the Mills Learning Methods Test.[47] An analysis of variance revealed that no one teaching method was significantly superior. The kinesthetic method was found to be less effective than any other method.[48]

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[45] James C. Coleman, "Learning Methods as a Relevant Subject Variable in Learning Disorders," Perceptual and Motor Skills, XXIV (April, 1962), p. 268.

[46] Bruininks, loc. cit.

[47] Richard D. Arnold, "Four Methods of Teaching Word Recognition to Disabled Readers," Elementary School Journal, LXVIII (February, 1968), 270.

[48] Ibid., p. 273.

CHAPTER III

THE RESEARCH PROCEDURE

The following plan was employed in conducting the research after the preliminary related literature had been examined.

SELECTION OF THE RESEARCH SAMPLE

The sample for the study was chosen from all second grade pupils in Lincoln Parish, Louisiana, a list of whom was secured from the central school office.

Division into Groups

The students were divided into two groups according to the $3,000.00 or less annual family income criterion. All students whose family income was at or below the criterion level were classified as disadvantaged. All students whose family income exceeded the criterion amount were grouped as non-disadvantaged.

Determination of the family income was accomplished through the joint efforts of the Lincoln Parish Welfare Department, Lincoln Parish Health Department, Lincoln Parish Community Action Program, and the teachers of the respective students. However, because of the limitations of the sources of socio-economic data, those pupils who had entered the Lincoln Parish School System for the first time in the Fall of 1969 were omitted from the lists if no data were available for such students.

The Research Sample

The final selection of twenty members from each socio-economic group was made through the use of a table of random numbers.[49] In the event that one of the sample members was absent for testing, another member was selected at random for the respective group.

Limitations imposed on the sample. The decision was made to exclude any child who had articulatory defects because of the increased possibility of error in determining whether or not the pupil had, in fact, recalled the word on the test but could not pronounce it correctly. Furthermore, articulatory disorders have been cited as being coincident with serious reading defects.[50]

Children with articulatory defects were considered to be those students who were presently receiving special speech therapy and those who were on the list to receive therapy whenever a vacancy arose in the speech programs. A consultation with each teacher prior to the initiation of testing served to control the incidence of articulatory disorders among the sample.

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[49] Herbert Adkins and Raymond Colton, Tables for Statisticians, Second Edition, (New York: Barnes and Noble, Inc., 1964), pp. 158-161.

[50] Lucie I. Lawson, "Language Disorders: The Relationship of Speech Defects and Reading Disabilities," Reading Disorders, eds. Richard M. Flower, et. al., (Philadelphia: F. A. Davis Company, 1965), p. 75.

Those second grade children from the Methodist Children's Home of Lincoln Parish, Louisiana, were also excluded from the study. It was assumed that many children from the Home would be within the disadvantaged category because of the income criterion, but that their physical needs would be supplied in degrees which were inconsistent with other disadvantaged children. Since children from the Home could not properly be placed in either category, it was decided that they should be excluded from the study.

Grade level of the sample. Students from the second grade were used in the study because it was assumed that at this level all pupils at least would have been exposed to rudimentary word attack skills. In addition, differences between lower socio-economic level children and those children of adequate means have been shown to grow wider as the children progress in school.[51] Research done by Clark ascertained that the degree of reading retardation becomes more severe as the disadvantaged child progresses in school. He reported that 75 percent of the eighth grade students from disadvantaged environments were below grade level in reading while only 30 percent of the disadvantaged third grade students were reading below grade level.[52] Therefore, it appeared advisable to test the students after they had acquired the necessary degree of readiness for the research task and before the gap between the two socio-economic groups had broadened.

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[51] Martin Deutsch, "The Role of Social Class in Language Development and Cognition," American Journal of Orthopsychiatry, XXV (1965), 80.

[52] Kenneth B. Clark, Dark Ghetto (New York: Harper and Row, Publishers, 1965), pp. 120-121.

COLLECTION OF DATA

After the sample was selected, the chief school administrator and the second grade teachers whose students were to participate in the study were consulted to explain the research procedure and to enlist their full cooperation. Each elementary school principal in Lincoln Parish had been previously notified by the Lincoln Parish Superintendent of Schools that the pending research was approved by the parish school board and that their cooperation was requested.

Administration of the Mills Learning Methods Test

Each pupil was tested individually in a comfortable room in his own school. The place of testing was chosen so that the area would be free from extraneous noise and other distracting factors. The testing environment was familiar to the student.

The students were called in from their classrooms at a predetermined time and a short period was devoted to establishing rapport. The order of calling disadvantaged and non-disadvantaged students from the same school was randomized so that the time of day during which the pupils were called and the length of time which the researcher had been administering the test would not affect one of the groups of students.

Description of the Mills Learning Methods Test

The Mills Learning Methods Test was designed as an aid in determining a student's ability to learn new words under different teaching procedures.[53] The purpose of the Mills Learning Methods Test is to determine the method or approach by which an individual child learns to recall new words most efficiently.[54]

The test consists of a series of standardized teaching and testing procedures for four approaches to word recognition. The four teaching methods used in the Learning Methods Test were as follows:

1. The Visual Method in which the child is taught word recognition by stressing only visual clues
2. The Phonic Method in which word recognition is taught exclusively by the sound properties of the words
3. The Kinesthetic Method in which the child is taught the new words by tracing, writing, and other motor and touching techniques
4. The Combination Method in which word recognition is taught by placing equal stress on the visual, auditory, and kinesthetic properties of the words.[55]

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[53] Mills, "An Evaluation of the Techniques for Teaching Word Recognition," op. cit., p. 310.

[54] Oscar Krisen Buros, ed., The Sixth Mental Measurement Yearbook (New Jersey: The Gryphon Press, 1965), p. 837.

[55] Robert Mills, Manual of Directions for the Learning Methods Test, revised edition (Fort Lauderdale: The Mills Center, 1964), p. 28.

Four sets of picture word cards accompanied the testing instrument. These sets included primer, first grade, second grade, and third grade level words which were taken from a compilation of frequencies of word usage in basal readers for the four different levels.[56]

The testing procedure required a pre-test of word recognition using the sets of word cards to determine forty words of one particular level which are unknown to the child. Therefore, the sets of words used in the teaching sessions were different for each individual. After determining the forty unknown words, ten of those forty words were taught each day by a different method for four consecutive days. A test of delayed recall was given for the words in each teaching set on the day following the teaching presentation. Therefore, the procedure required five consecutive days for the standardized administration of the Mills Learning Methods Test. A period of exactly fifteen minutes was used for each teaching session.

Randomization of the Order of Presentation

Prior to the actual testing time, the order of presentation of the four different word recognition methods of the Mills Learning Methods Test was randomly assigned in an attempt to control the influence of order effects on the experiment. All possible permutations of four things taken four at a time were calculated and each permuted order of presentation was randomly assigned by groups to the pupils so that each order of presentation occurred at least once in each group.

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[56] Ibid.

Description of the Testing Procedure

Each child was administered the Mills Learning Methods Test individually. All testing was done by the researcher. The test consisted of a series of teaching lessons with tests to determine the delayed recall of the words by the students. The test purported to yield indications of the appropriateness of the various methods for different individuals.[57] The testing proceeded according to the following schedule:

Session 1: pre-test to determine forty unknown words from the Mills picture word cards and presentation of the learning method for Set I (exactly fifteen minutes). Time: approximately thirty minutes per child.

Session 2, the following day: delayed recall test for Set I and presentation of the learning method for Set II (exactly fifteen minutes). Time: approximately twenty minutes per child.

Session 3, the following day: delayed recall test for Set II and presentation of the learning method for Set III (exactly fifteen minutes). Time: approximately twenty minutes per child.

Session 4, the following day: delayed recall test for Set III and presentation of the learning method for Set IV (exactly fifteen minutes). Time: approximately twenty minutes per child.

Session 5, the following day: delayed recall test for Set IV. Time:

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[57] Ibid., p. 27.

approximately five minutes per child.

Record for the Mills Learning Methods Test. The special record sheet which accompanied the Learning Methods Test was used for each child, and all pertinent personal data were recorded. (See Appendix A) The forty unknown words were randomly placed in four stacks of ten word cards each and then the four sets of words were recorded on the student's record sheet. The pre-determined order of presentation of the learning methods was listed in the appropriate blanks before the initial session with each child. Therefore, the set of words which was used for each learning method was a factor of chance occurrence for each of the forty subjects. There were ten words in each teaching set and each correct response was recorded. Therefore, the possible scores ranged from zero to ten on each teaching set, each response counting 1 if correct and 0 if incorrect. The raw scores for each learning set were used in the statistical procedures.

Period of time for testing. All testing was scheduled for the Fall semester of 1969. There was a range of slightly more than two months in testing dates between the first subject and the last. The testing schedule was set up in this manner so that there would be no significant educational or maturational advantage for those students who were tested last.

Absent subjects. Since the teaching and testing procedures were standardized and the test for delayed recall was set for the day following the teaching method presentation, it was imperative that all subjects receive the treatment on consecutive days. In the case of subjects who were absent on any one of the five consecutive days, those subjects were disqualified and different subjects were randomly selected from the appropriate socio-economic group.

PURPOSES AND HYPOTHESES

The investigation was designed for the following purposes:

1. To determine whether or not socio-economic status influences the method by which students learn new words most readily
2. To determine whether a particular method of teaching word recognition is more effective for all students
3. To determine whether or not a combination of socio-economic status and teaching method influences the learning of new words.

The general research questions were transformed into null hypotheses. These hypotheses were as follows:

A. There are no significant differences in students' performance on any of the four teaching methods.

B. There is no significant difference between the performance of disadvantaged children and non-disadvantaged children on the four learning methods.

C. There is no significant interaction between the two socio-economic levels and any of the four teaching methods.

STATISTICAL PROCEDURES

The research design required that the sample be divided into two groups on the basis of family income. Each member of each group received a series of four learning methods treatments. The null hypotheses were tested through the use of a two-way classification analysis of variance. The design which appeared to be most appropriate for analysis of the data was a Lindquist Type I Design.[58]

A test to determine the significance of the difference between specific pairs of means was applied whenever the analysis revealed a significant F ratio. The .05 level of significance was used in making decisions regarding acceptance or rejection of the null hypotheses. A test of the simple effects of the classification of the sample into two socio-economic groups was also applied.[59]

Additional Analyses

In order to avoid unwarranted conclusions regarding the true effects of the division of the students into disadvantaged and non-disadvantaged groups, further analyses of the composition of the groups seemed desirable. The students were regrouped on the basis of sex and then by race for further analysis. The following sets of null hypotheses were formulated.

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[58] E. F. Lindquist, Design and Analysis of Experiments in Psychology and Education (Boston: Houghton Mifflin Company, 1953), p. 267.

[59] Ibid., p. 271.

Set II

A. There is no significant difference between the performance of white students and Negro students on any of the four learning methods.

B. There is no significant interaction between race and any of the four learning methods.

Set III

A. There is no significant difference between the performance of male students and female students on any of the four learning methods.

B. There is no significant interaction between sex and any of the four learning methods.

The sets of null hypotheses were tested according to the Lindquist Type I Design as were the original hypotheses.[60] Each set of hypotheses was tested separately. All significant effects were tested through the use of appropriate t tests.[61] The .05 level of significance was employed for all tests of significance.

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[60] Ibid., p. 267.

[61] Ibid., p. 272.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

The purpose of the chapter is to present the data obtained through the procedure outlines in the preceding chapter. The chapter is divided into two main sections. The first section treats the data collected for the subjects when administered the Mills Learning Methods Test. The second section is devoted to a discussion of the obtained results.

PRESENTATION OF DATA

The following section of the chapter presents the data regarding the characteristics of the subjects as well as a report of the statistical analyses calculated on the data for the Learning Methods Test.

Description of the Subjects

The sample for the study consisted of forty second grade students from eight of the twelve elementary schools in Lincoln Parish, Louisiana. A total of 529 children in the second grades of the parish, excluding students for whom no socioeconomic data were available, students from the Methodist Children's Home, and students with articulatory defects, was categorized as disadvantaged or non-disadvantaged according to the income criterion previously described. A random selection of twenty students was made from each of the two socio-economic categories.

Four students from one school were eliminated after the administration of three learning methods because an unanticipated school holiday interrupted the testing schedule. The replacements for those students were randomly selected from the appropriate socio-economic groups.

The final sample was composed of twenty members from the disadvantaged category and twenty members from the non-disadvantaged category. Table I shows the number and percentage of males and females within each socio-economic classification. There were more male members than female members in the disadvantaged group. The non-disadvantaged group had an equal number of both sexes. Both sexes received approximately equal representation in the entire sample.

Table II presents the sample as divided by race and sex. Negro males comprised the largest percentage of students in the sample while the smallest percentage of the sample was represented by Negro female students. White females were represented in a larger percentage than white males. The sample had equal numbers in each racial category.

The racial composition of both socio-economic groups was sub-divided according to sex, as demonstrated in Table III. The disadvantaged group was composed of 75.0 percent Negro subjects. The non-disadvantaged group contained 75.0 percent white students.

Male Negro students in the disadvantaged group comprised 66.7 percent of all Negro students in that category. Male students were also represented in larger

TABLE I

NUMBER AND PERCENTAGE OF MALES AND FEMALES BY SOCIO-ECONOMIC GROUPS

Students	Disadvantaged		Non-disadvantaged		Total	
	Number	Percent	Number	Percent	Number	Percent
Males	11	55.0	10	50.0	21	52.5
Females	9	45.0	10	50.0	19	47.5
TOTAL	20	100.0	20	100.0	40	100.0

TABLE II

NUMBER AND PERCENTAGE OF MALES AND FEMALES BY RACIAL GROUPS

Students	White		Negro		Total	
	Number	Percent	Number	Percent	Number	Percent
Males	9	45	12	60	21	52.5
Females	11	55	8	40	19	47.5
TOTAL	20	100	20	100	40	100.0

TABLE III

NUMBER AND PERCENTAGE IN RACIAL CATEGORIES BY SEXES FOR BOTH SOCIO-ECONOMIC GROUPS

	Disadvantaged		Non-disadvantaged	
	Number	Percentage	Number	Percentage
Total Males	11	55.0	10	50.0
Total Females	9	45.0	10	50.0
Total Negroes	15	75.0	5	25.0
Negro Males	10	66.7	2	40.0
Negro Females	5	33.3	3	60.0
Total Whites	5	25.0	15	75.0
White Males	1	20.0	8	53.3
White Females	4	80.0	7	46.7
TOTAL	20		20	

numbers than female students in the white, non-disadvantaged classification. However, there were more white females than white males in the disadvantaged group. There were more Negro females than Negro males in the non-disadvantaged group.

An analysis of the composition of the sample according to race, sex, and socio-economic status is presented in Table IV. There was a total of eleven disadvantaged male pupils in the sample. Ten of those were Negro and one was white. Also, there were more disadvantaged Negro girls than disadvantaged white girls. Within the non-disadvantaged category, eight of the male students were white and two were Negro. Seven of the ten non-disadvantaged females were white.

The mean age of the students was seven years, five months. Table V presents the frequency distribution of ages by socio-economic groups. There was a four month difference in the mean ages of the two socio-economic groups with the disadvantaged group having the greater mean age. The ages ranged from six years, eleven months to eight years, six months. The majority of the subjects was seven years of age with only 15 percent of the sample being within the eight year age range.

The frequency distributions of scores on the Mills Learning Methods Test for both disadvantaged and non-disadvantaged subjects are included in Appendix B, Exhibits I through IV.

Statistical Analysis of the Data

The three sets of hypotheses were tested through a two-way classification analysis of variance, Lindquist Type I Design. The results are reported below.

TABLE IV

RACE AND SOCIO-ECONOMIC STATUS OF THE SAMPLE BY SEX

Subjects	Negro	White	Total
Males	12	9	21
Females	8	11	19
Disadvantaged Males	10	1	11
Disadvantaged Females	5	4	9
Total Disadvantaged	15	5	20
Non-disadvantaged Males	2	8	10
Non-disadvantaged Females	3	7	10
Total Non-disadvantaged	5	15	20

TABLE V

FREQUENCY DISTRIBUTION OF AGES BY SOCIO-ECONOMIC GROUPS

Age	Disadvantaged	Non-disadvantaged	Total
8.6	0	1	1
8.3	2	1	3
8.2	1	0	1
8.1	0	0	0
8.0	0	1	1
7.10	1	1	2
7.9	0	3	3
7.8	0	1	1
7.7	2	0	2
7.6	1	1	2
7.5	2	1	3
7.4	1	2	3
7.3	1	1	2
7.2	6	6	12
7.1	1	1	2
7.0	1	0	1
6.11	1	0	1
TOTAL N	20	20	40
Range	6.11 - 8.3	7.1 - 8.6	6.11 - 8.6
Mean	7.8	7.4	7.5

Analysis of the Effects of Learning Methods

The first hypothesis concerned the effects of the presentation of the Mills Learning Methods Test to the subjects of the study. The analysis revealed a statistically significant ratio for the effects of learning methods, as shown in Table VI. The mean scores for visual, phonic, kinesthetic, and combination methods are graphically presented in Figure I. Subsequent analyses by race and sex of the subjects also revealed significant effects of learning methods, as shown in later sections of this chapter.

Statistical difference between mean scores on the Mills Learning Methods Test. Appropriate t tests were applied to specific pairs of mean scores for the four learning methods. The mean scores and standard deviations for each learning method are shown in Table VII. The values of t for specific pairs of mean scores are also given in Table VII. Statistically significant differences were found between the visual method and the phonic method, the visual method and the kinesthetic method, and the combination method and the kinesthetic method. The mean of the visual method was significantly greater than the mean of either the phonic method or the kinesthetic method. The mean for the combination method was significantly greater than the mean for the kinesthetic method. The mean score on the visual method was higher than the mean scores on any of the other three learning methods. The kinesthetic method showed the lowest mean score of the four learning methods.

Effects of Grouping Subjects According to Socio-economic Status

The statistical analysis revealed a statistically significant ratio for the

TABLE VI

SUMMARY OF ANALYSIS OF VARIANCE OF EFFECTS OF TEACHING METHODS ON DISADVANTAGED AND NON-DISADVANTAGED LEARNERS

Source	Sum of Squares	df	Mean Squares	F
Between Subjects	1243.50	39		
Socio-economic groups	204.76	1	204.76	7.48*
Error (b)	1038.74	38	27.34	
Within Subjects	187.75	120		
Learning Method	22.87	3	7.62	5.44*
Learning Method X Socio-economic Group	5.37	3	1.79	1.27
Error (w)	159.51	114	1.40	
TOTAL	1431.25	159		

*$p < .01$

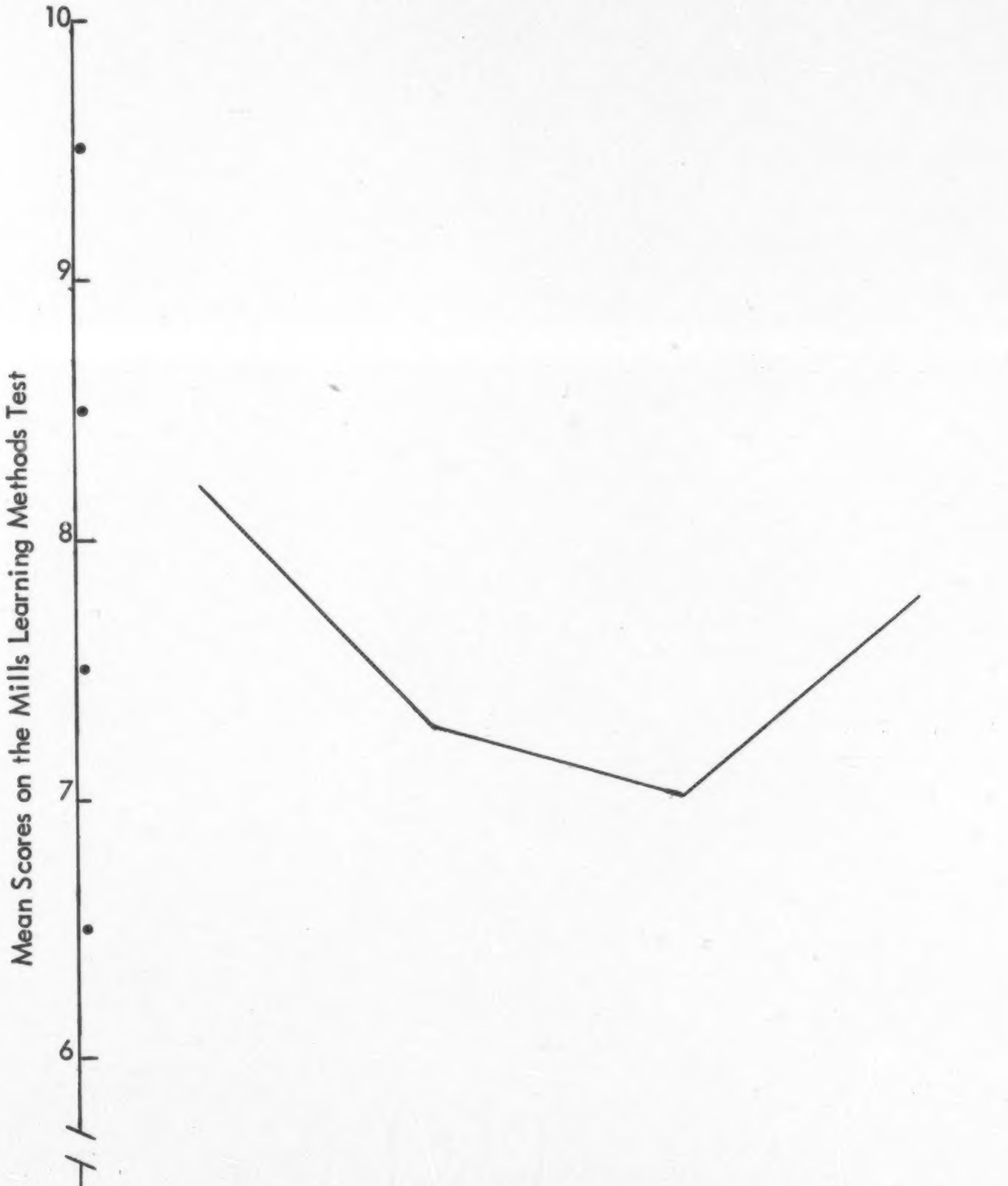

FIGURE 1

EFFECTS OF LEARNING METHOD DISREGARDING
SOCIO-ECONOMIC STATUS, RACE, AND SEX

TABLE VII

RESULTS OF t TESTS BETWEEN SPECIFIC PAIRS OF MEANS ON THE MILLS LEARNING METHODS TEST DISREGARDING SOCIO-ECONOMIC STATUS, RACE, AND SEX

		Method			
		Visual	Phonic	Kinesthetic	Combination
	Mean	8.21	7.38	7.18	7.72
	SD	2.73	3.26	2.97	3.06
Visual			3.12*	3.38*	1.85
Phonic				.75	1.28
Kinesthetic					2.04*

*$\underline{t} < .05$

effects of division of the subjects into disadvantaged and non-disadvantaged groups, as previously shown in Table VI. The second hypothesis was rejected because a statistically significant difference was found between the mean scores of the two groups of subjects. Figure 2 graphically presents the mean scores for disadvantaged subjects and non-disadvantaged subjects on each of the four learning methods.

Statistical difference between mean scores for disadvantaged and non-disadvantaged students. In order to determine the simple effects of the division of the subjects into socio-economic groups, *t* tests were applied to the mean scores of both groups on each individual learning method. The mean scores on each learning method are shown for both disadvantaged and non-disadvantaged students in Table VIII. Table VIII also shows that there was a statistically significant difference between the mean scores of disadvantaged subjects and the mean scores of non-disadvantaged subjects for each learning method. Non-disadvantaged students made mean scores on each learning method which were significantly higher than the mean scores obtained by disadvantaged students.

Interaction of learning method with socio-economic status. The analysis revealed that the ratio for the effects of learning methods combined with the socio-economic groupings was not statistically significant, as shown in Table VI. Figure 3 presents a graph of the effects of learning methods when presented to disadvantaged and non-disadvantaged subjects.

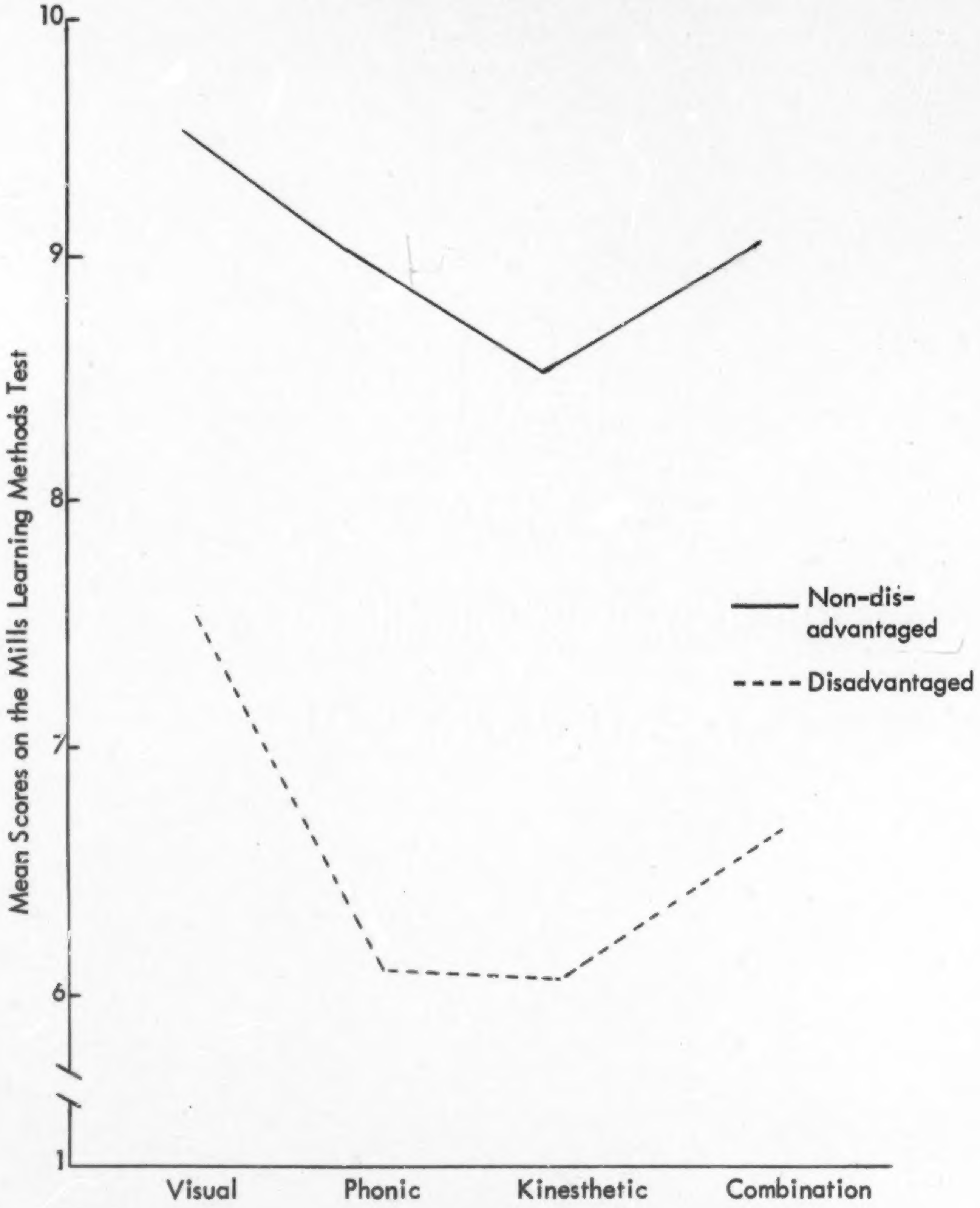

FIGURE 2

EFFECTS OF LEARNING METHOD ON DISADVANTAGED AND NON-DISADVANTAGED LEARNERS

TABLE VIII

MEAN SCORES ON EACH LEARNING METHOD AND DIFFERENCES BETWEEN DISADVANTAGED AND NON-DISADVANTAGED GROUPS AS DETERMINED BY t TESTS

	Method			
	Visual	Phonic	Kinesthetic	Combination
Mean for Disadvantaged	7.47	6.16	6.11	6.79
Mean for Non-Disadvantaged	9.37	9.00	8.63	9.05
t	5.08*	7.59*	6.74*	6.04*

*$t < .05$

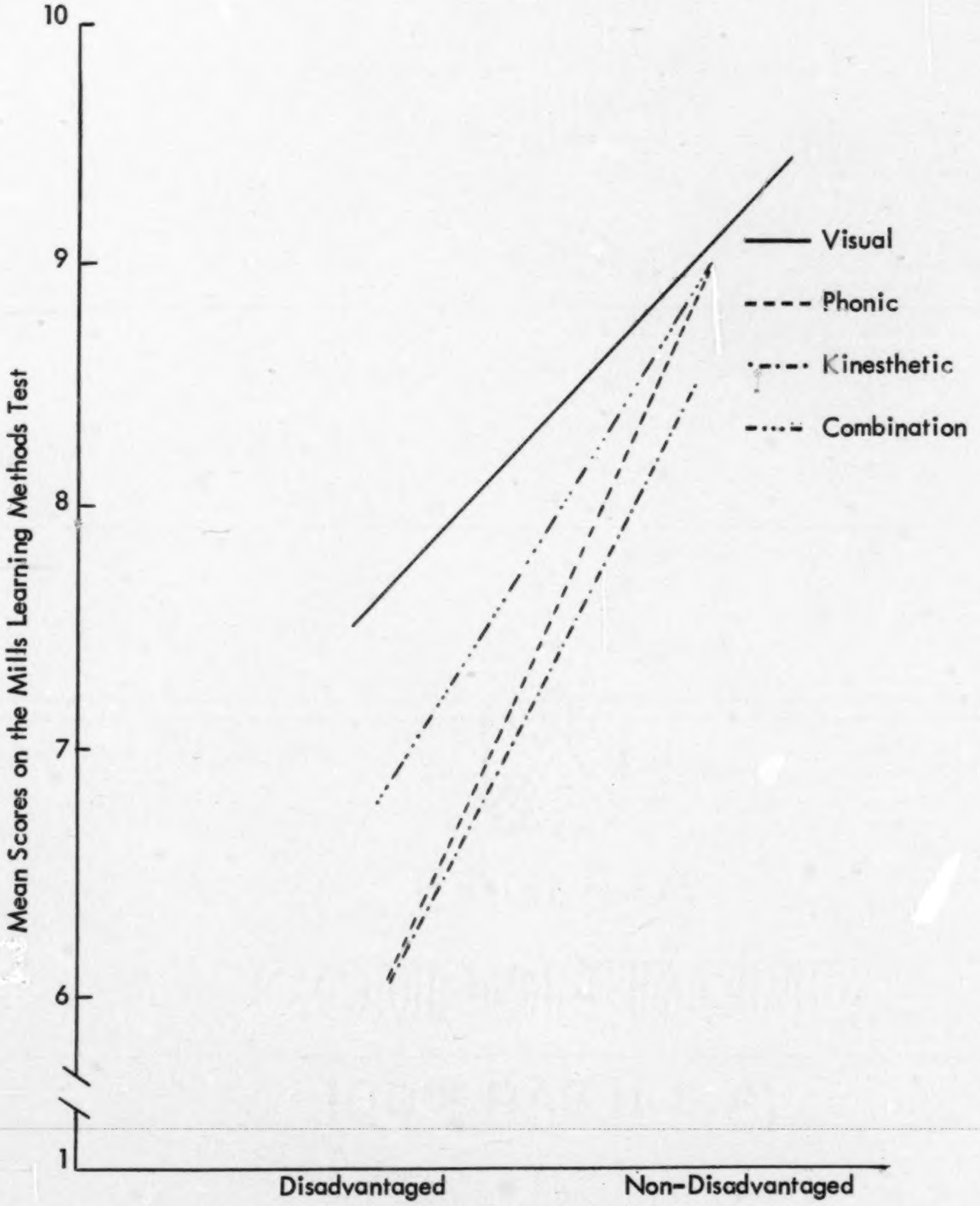

FIGURE 3

EFFECTS OF VISUAL, PHONIC, KINESTHETIC, AND COMBINATION LEARNING METHODS PRESENTED TO DISADVANTAGED AND NON-DISADVANTAGED LEARNERS

Effects of Grouping Subjects According to Race

In order to clarify the data with regard to the racial composition of the sample, the subjects were regrouped on the basis of race. The second set of hypotheses were then tested through a two-way classification analysis of variance, Lindquist Type I Design. Table IX presents a summary of that analysis. The tests indicated statistically significant effects of dividing the subjects according to Negro and white races. Figure 4 represents the mean scores of Negro and white subjects on the four learning methods.

Statistical difference between mean scores for Negro and white subjects. Tests for the simple effects of the classification of subjects by race were applied. The significance of the differences between mean scores for Negroes and whites was tested through appropriate t tests, using each pair of mean scores for each individual learning method. Table X presents the means, standard deviations, and t values for the differences between pairs of means for Negro students and white students on each learning method. Each one of the t tests revealed a significant difference. On each comparison, white students had statistically higher mean scores than the Negro students.

Interaction of learning methods and race. The analysis revealed that the interaction of learning method with race of the subjects was not statistically significant. Figure 5 shows the effects of learning methods when presented to Negro and white subjects.

TABLE IX

SUMMARY OF ANALYSIS OF VARIANCE OF EFFECTS OF LEARNING METHODS ON SUBJECTS GROUPED BY RACE

Source	Sum of Squares	df	Mean Square	F
Between Subjects	1243.50	39		
Race	204.76	1	204.76	7.48*
Error (b)	1038.74	38	27.34	
Within Subjects	187.75	120		
Learning Methods	22.87	3	7.62	5.33*
Race X Learning Method	2.27	3	.75	.52
Error (w)	162.61	114	1.43	
TOTAL	1431.50	159		

$^*p < .01$

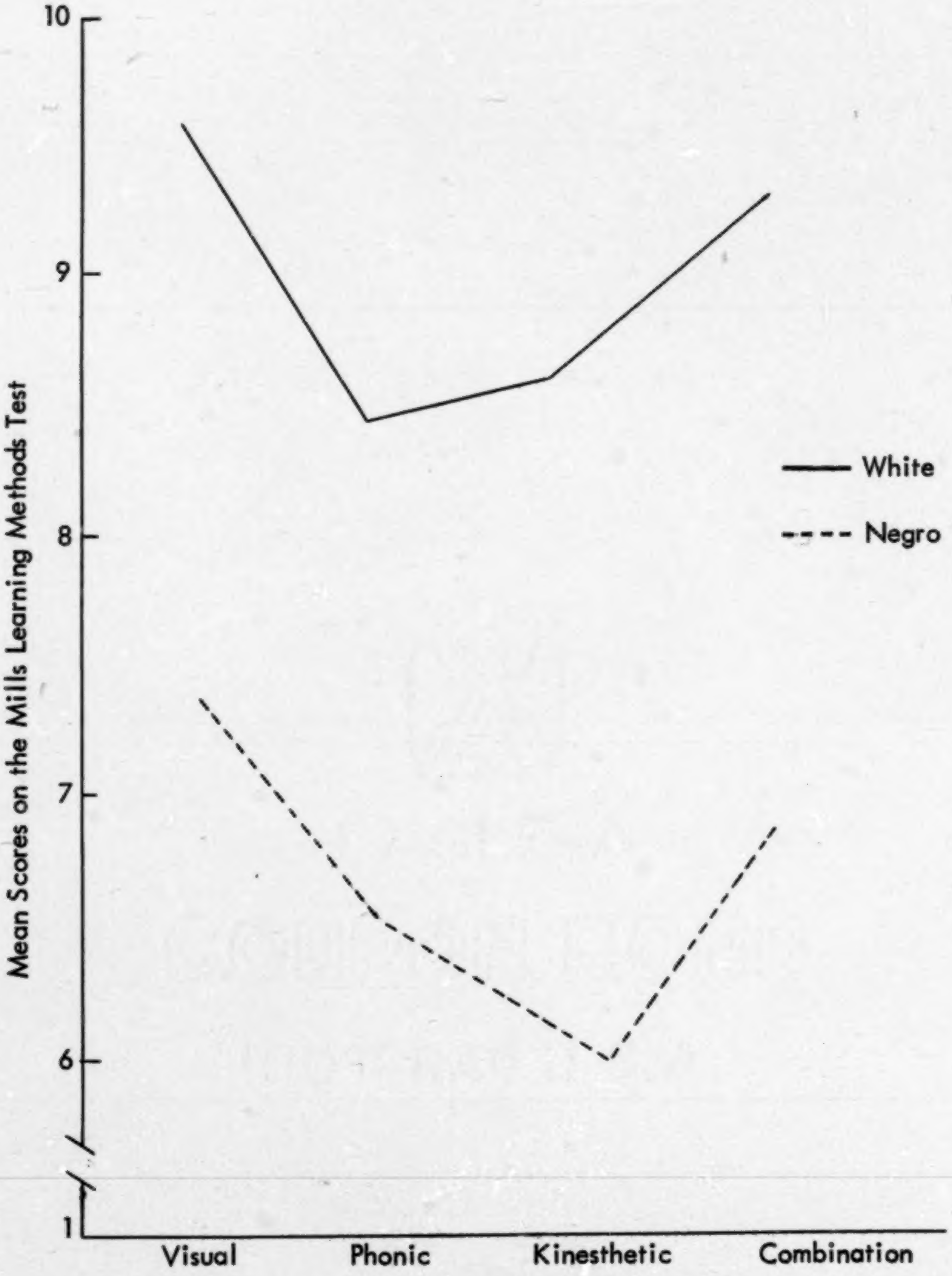

FIGURE 4

EFFECTS OF LEARNING METHOD ON
NEGRO AND WHITE SUBJECTS

TABLE X

MEANS AND STANDARD DEVIATIONS FOR EACH LEARNING METHOD AND THE DIFFERENCES BETWEEN NEGRO AND WHITE SUBJECTS AS DETERMINED BY _t_ TESTS

	Method			
	Visual	Phonic	Kinesthetic	Combination
Mean for Negro	7.26	6.58	6.05	6.63
SD for Negro	3.44	4.08	3.27	3.46
Mean for White	9.58	8.58	8.68	9.21
SD for White	.96	1.80	2.01	1.44
_t_	2.54*	2.14*	3.02*	2.91*

*_t_ < .05

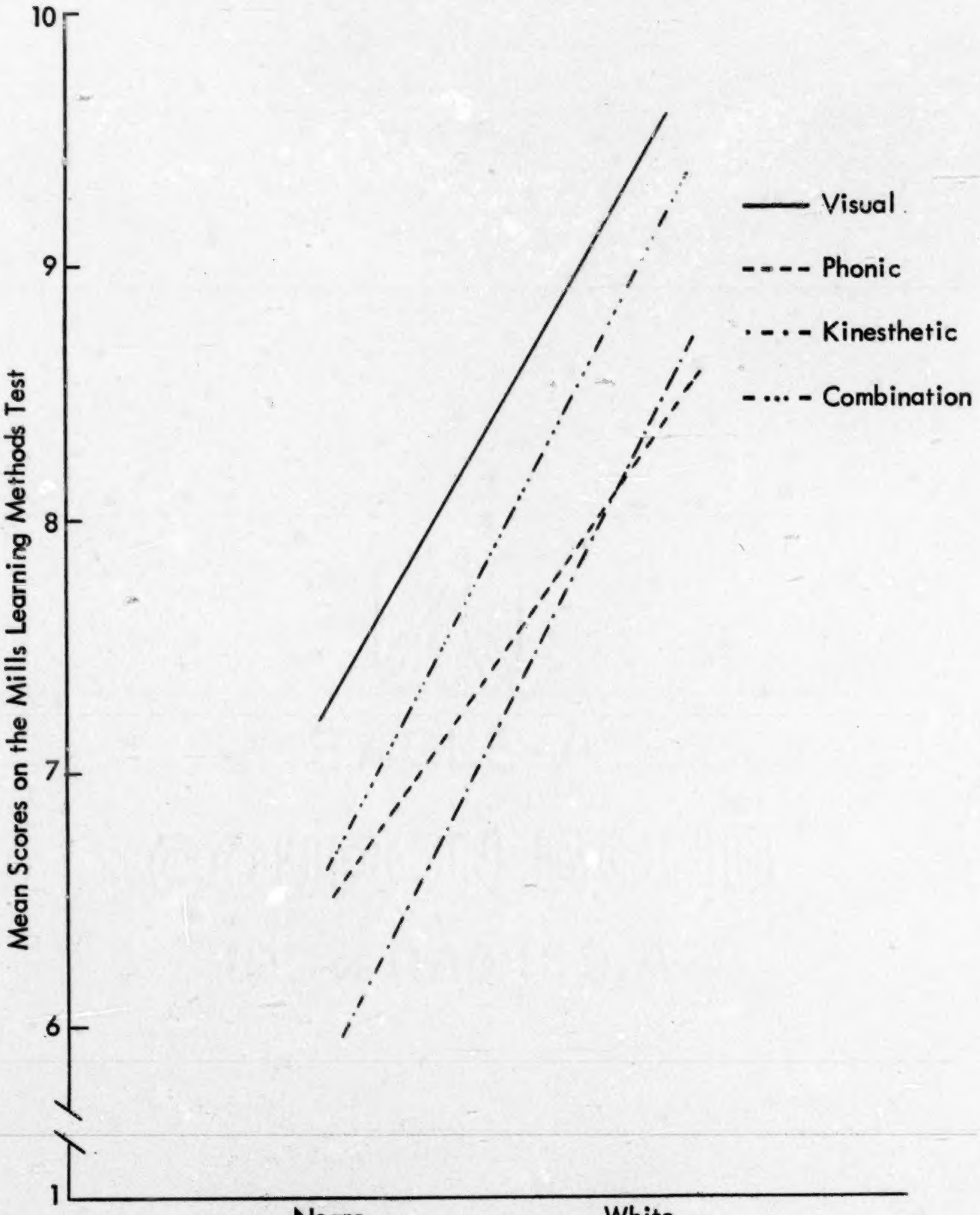

FIGURE 5

EFFECTS OF VISUAL, PHONIC, KINESTHETIC, AND COMBINATION LEARNING METHODS PRESENTED TO NEGRO AND WHITE SUBJECTS

Effects of Grouping Subjects According to Sex

The final set of hypotheses was tested through the Lindquist Type I Design, also. The results of the analysis are reported in Table XI. The analysis revealed that the effect of grouping the subjects according to sex was significant. There was a statistically significant difference between the performance of male students and female students on the Mills Learning Methods Test. A graph of the mean scores for male subjects and female subjects on each of the four learning methods is presented in Figure 6.

Statistical difference between mean scores for males and females. Table XII reports the means, standard deviations, and differences between specific mean scores as determined by _t_ tests. There was a statistically significant difference between each pair of means. Female subjects received significantly higher mean scores on each learning method when compared with the mean scores of male subjects on the corresponding learning method.

Interaction of learning methods with sex of subjects. The analysis failed to indicate a statistically significant ratio for the interaction of learning methods with sex of the subjects. Figure 7 shows the effects of learning methods presented to male and female subjects.

Comparison of Data by Socio-economic Status, Race, and Sex of the Subjects

Table XIII reports the means and standard deviations for learning methods when the sample was grouped by socio-economic status, race, and sex. As a group,

TABLE XI

SUMMARY OF ANALYSIS OF VARIANCE OF EFFECTS OF LEARNING METHODS ON SUBJECTS GROUPED ACCORDING TO SEX

Source	Sum of Squares	df	Mean Squares	F
Between Subjects	1243.50	39		
Sex	138.08	1	138.08	4.73*
Error (b)	1105.42	38	29.13	
Within Subjects	187.75	120		
Learning Method	22.87	3	7.62	5.48**
Sex X Learning Method	5.89	3	1.96	1.41
Error (w)	158.99	114	1.39	
TOTAL	1431.25	159		

*$p < .05$

**$p < .01$

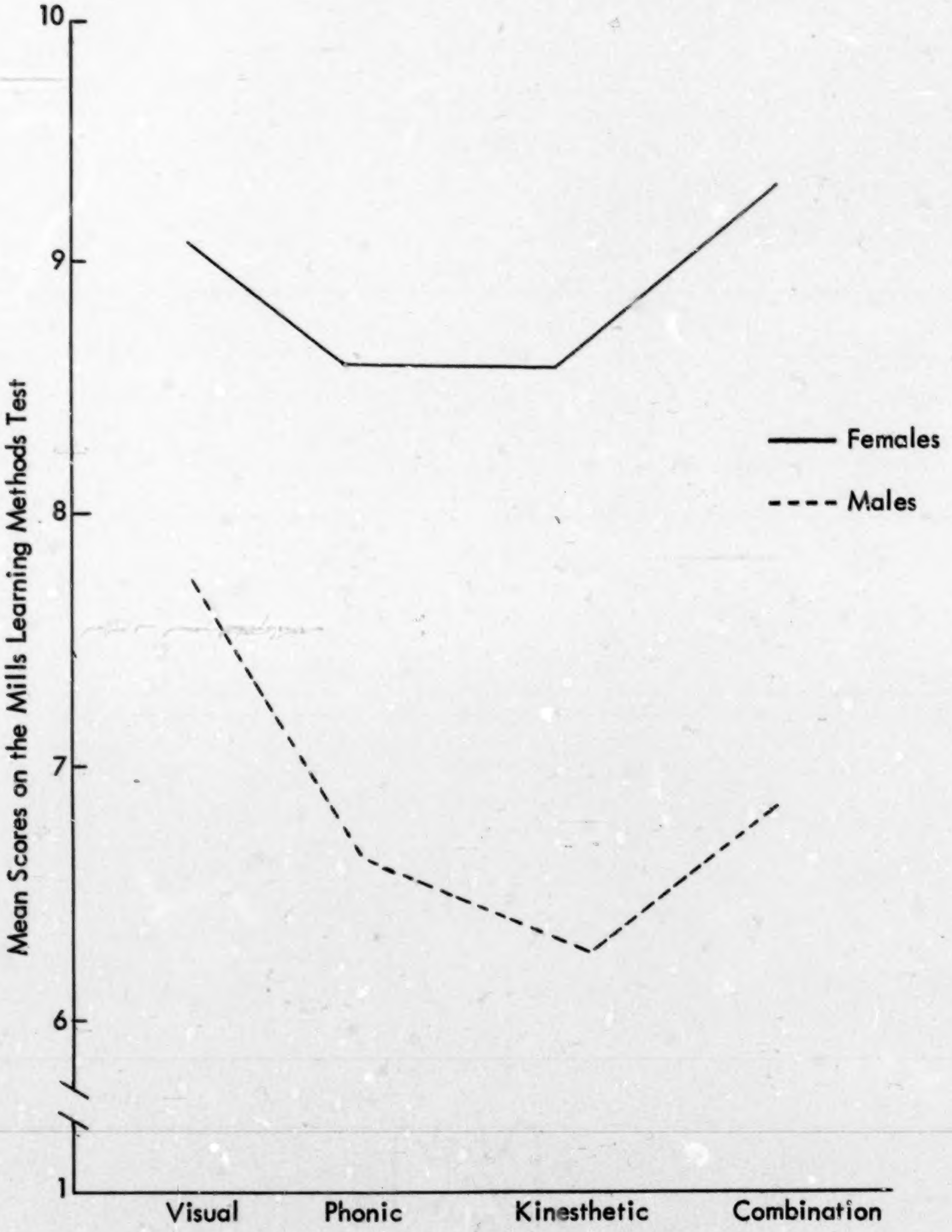

FIGURE 6

EFFECTS OF LEARNING METHOD ON
MALE AND FEMALE SUBJECTS

TABLE XII

MEANS AND STANDARD DEVIATIONS FOR EACH METHOD AND THE DIFFERENCES BETWEEN MEANS FOR MALE AND FEMALE SUBJECTS AS DETERMINED BY _t_ TESTS

	Method			
	Visual	Phonic	Kinesthetic	Combination
Mean for Males	7.75	6.70	6.30	6.75
SD for Males	3.11	3.84	3.21	3.48
Mean for Females	9.17	8.56	8.56	9.22
SD for Females	2.82	2.25	2.28	1.96
_t_	4.06*	4.97*	6.31*	6.60*

*$t < .05$

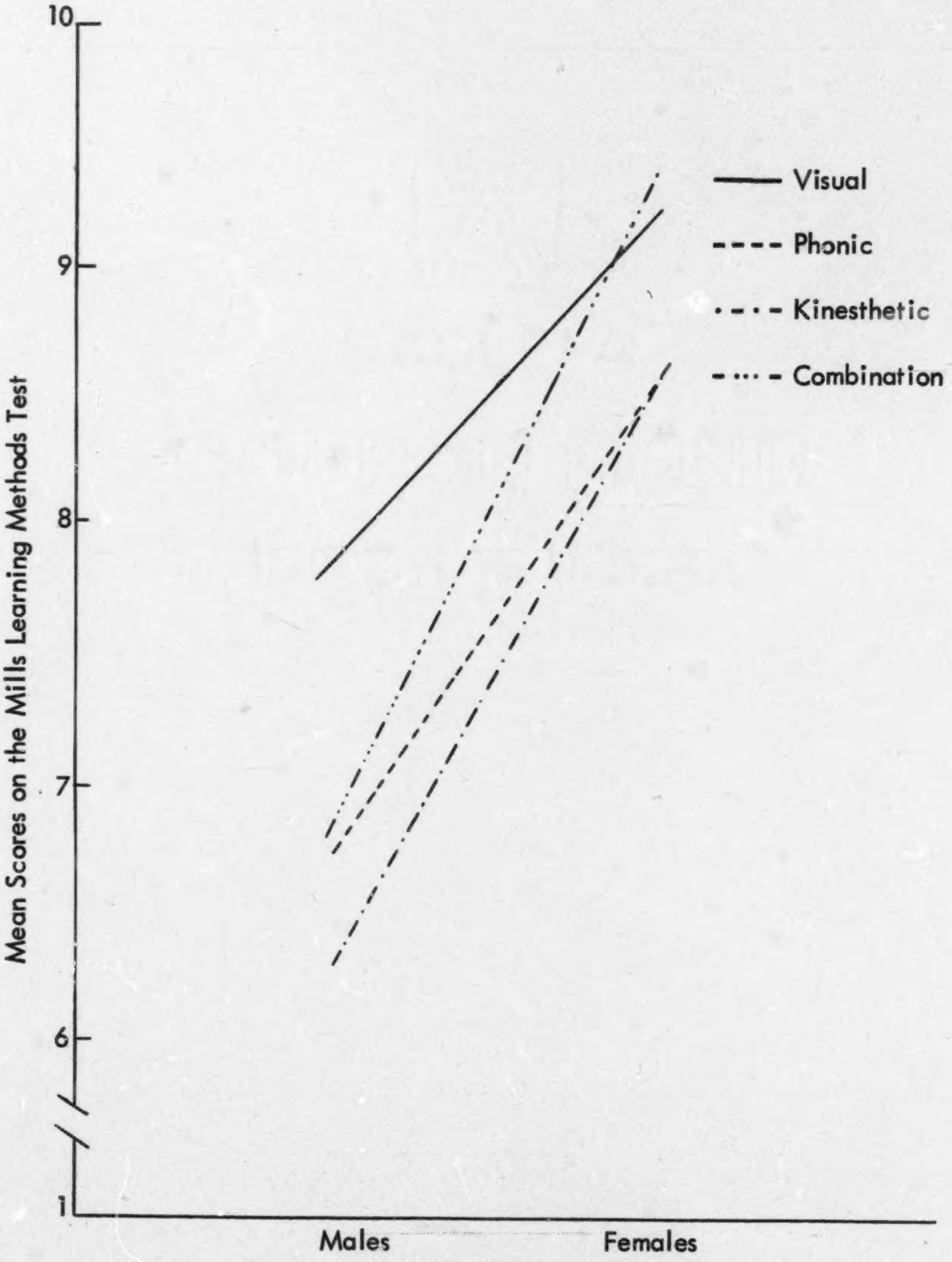

FIGURE 7

EFFECTS OF VISUAL, PHONIC, KINESTHETIC, AND COMBINATION LEARNING METHODS PRESENTED TO MALE AND FEMALE LEARNERS

TABLE XIII

MEANS AND STANDARD DEVIATIONS FOR LEARNING METHODS ACCORDING TO SOCIO-ECONOMIC STATUS, RACE, AND SEX OF THE SUBJECTS

Method	Disadvantaged		Non-Disadvantaged		Negro		White		Male		Female	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Visual	7.47	3.17	9.37	1.83	7.26	3.44	9.58	.96	7.75	3.11	9.17	2.82
Phonic	6.16	3.88	9.00	1.73	6.58	4.08	8.58	1.80	6.70	3.84	8.56	2.25
Kinesthetic	6.11	3.30	8.63	2.04	6.05	3.27	8.68	2.01	6.30	3.21	8.56	2.28
Combination	6.79	3.45	9.05	2.24	6.63	3.46	9.21	1.44	6.75	3.48	9.22	1.96
Group Mean	6.38		8.67		6.38		8.67		6.63		8.52	
Group SD		3.49		1.95		3.69		1.63		4.45		2.26
Group N	20		20		20		20		21		19	

white subjects had the highest of the mean scores on the visual method while the Negro group had the lowest of the visual method mean scores. Non-disadvantaged students had the highest of the mean scores for the phonic method. Disadvantaged students had the lowest of the mean scores for the phonic method. White students performed more efficiently with the kinesthetic method than did any of the other classification groups. Negro subjects had the lowest of the mean scores for the kinesthetic method. Females achieved the highest of the mean scores on the combination method while Negroes had the lowest of the mean scores on that method. Visual method mean scores were higher than means on other methods for the subjects when grouped as disadvantaged, non-disadvantaged, male, Negro, and white. The females showed the highest of their mean scores on the combination method rather than on the visual method as the other classifications of subjects had done. The kinesthetic method had the least mean score of the four teaching methods for the subjects grouped as disadvantaged, non-disadvantaged, male, and Negro. The least mean score for white students was on the phonic method. Female subjects had the same mean score for both phonic and kinesthetic methods, and these means were lower than either the combination or visual methods.

The lists of words which were taught during the presentation of the Mills Learning Methods Test are presented in Appendix C, Exhibits I through IV. The words are grouped according to the level of difficulty. The frequency of presentation of each word is given according to socio-economic status, race, and sex of the subjects using each individual word.

DISCUSSION OF THE RESULTS OF THE STUDY

The following section of the chapter includes discussions of the data collected for the study and of possible implications of the findings of the research. The research findings are also discussed in relationship with other findings from similar research.

Characteristics of the sample influencing results

Some characteristics of the sample seemed to have influenced the results of the analysis for the study. A random sample drawn from a population stratified according to socio-economic status, race, and sex may have helped to alleviate some of the following problems encountered in attempting to interpret some of the results of the research.

Sex factors influencing the results. The disadvantaged group of students had more male subjects than female subjects. A significant difference between the performance of males and females on the Mills Learning Methods test was noted. Females had the higher mean scores on each of the four learning methods. There is a possibility that some of the difference between the socio-economic groups which was found in the analysis was actually attributable to the unequal weighting of the male subjects in the disadvantaged group rather than to the effects of socio-economic status. In addition, the significant difference which was found between Negro and white subjects may have been influenced by the number of the male Negroes and male white subjects. There were more Negro males than white males, and Negroes tended to show inferior performance on the Mills Learning Methods Test when compared with white students.

Discussion of age factors. The conclusions of the research conducted by Mills on the word recognition methods most appropriate for children in the seven year age group were consistent with the findings of the present study. Most of the students in the present sample were within the seven year age group, the mean age being seven years and five months. In agreement with Mills' findings,[62] the present research revealed that children within the age group represented by the subjects of the study achieved their highest mean score on the visual method of the Mills Learning Methods Test and their lowest mean score on the kinesthetic method.

Discussion of Findings Regarding Word Recognition Methods

The t tests indicated significant differences between the visual method and phonic method, the visual method and kinesthetic method, and the combination method and kinesthetic method. The tests indicated that the visual method was significantly better than either the phonic or kinesthetic methods, irrespective of socioeconomic status, race, or sex of the subjects. In addition, the combination method was found to have a significantly higher mean than the kinesthetic method, as indicated by t tests of significance. Therefore, the visual method seems to produce the most effective results in teaching new words to second grade students, regardless of their socio-economic status, race, or sex. The kinesthetic method appears to be the least effective approach to teaching new words to the same group of students.

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[62] Mills, Manual of Directions for the Learning Methods Test, loc. cit.

Discussion of Findings Related to Socio-economic Status of Subjects

For each learning method, non-disadvantaged students achieved higher mean scores than disadvantaged students. The significant t tests between the mean scores for disadvantaged and non-disadvantaged subjects on each learning method indicated that non-disadvantaged students perform significantly better on all of the four teaching methods than do disadvantaged students.

Even though the interaction term for the study did not reach statistical significance, the data did suggest some factors of importance to educators. The implications drawn from an inspection of the data are discussed in the following sections.

The Visual Method and Implications for Disadvantaged Students

The results of the analysis of the data for the visual method were in agreement with those authors who support the theory that disadvantaged students respond readily to visual clues.[63] Although the visual method was not found to be statistically superior to other methods for disadvantaged subjects, the disadvantaged students did have a higher mean score on the visual method than on any of the other word recognition methods of the Mills Learning Methods Test. The finding was consistent with the conclusion of Stephenson that disadvantaged students seem most adept at visual decoding tasks on tests of psycholinguistic ability.[64] The disadvantaged subjects' attainment of higher mean scores on the visual method was also in accord with Bruininks' finding that disadvantaged boys have higher performance on the visual method of the Mills Learning Methods Test.[65]

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[63] Reissman, The Culturally Deprived Child, loc. cit.; Fantini and Weinstein, op. cit., p. 50-51; Webb, loc. cit.; Crow, et.al., op. cit., p. 185.

The Phonic Method and Implications for Disadvantaged Students

Several authors suggest that disadvantaged children have deficiencies in auditory discrimination.[66] Such a deficiency would adversely affect the ability of disadvantaged students to distinguish between discrete sounds, which is a prerequisite for effective instruction in phonics. If the contention proved true, it would be reasonable to assume that disadvantaged children would tend to perform poorly when taught new words by a phonic approach. The present study found that disadvantaged subjects produced a mean score on the phonic method which was lower than either visual mean or combination mean, but not as low as the kinesthetic method. However, the present study failed to find conclusive evidence that phonic approaches to word recognition would prove fruitless when presented to disadvantaged children, even though disadvantaged subjects of the study tended to have low scores on the kinesthetic method as indicated in Appendix B, Exhibit III.

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[64] Stephenson, loc. cit.

[65] Bruininks, loc. cit.

[66] Webb, loc. cit.; Reissman, "The Overlooked Positives of Disadvantaged Groups," loc. cit.; Crow, et. al., op. cit., p. 84.

The Kinesthetic Method and Implications for Disadvantaged Children

The results of the present study do not support the theory of Reissman which maintains that disadvantaged children prefer learning through physical and concrete approaches.[67] The kinesthetic method, which incorporates techniques of tracing words while maintaining physical contact with the object upon which the word is written, proved to produce the poorest mean score when presented to disadvantaged subjects. Crow and his co-authors also supported a kinesthetic approach to learning as superior to other word recognition methods for disadvantaged students.[68] The present research does not confirm that the kinesthetic approach is appropriate for disadvantaged learners. In view of the results of the present research, the kinesthetic method appears to offer the least effective approach to word recognition for disadvantaged children in the second grade. Perhaps at different grade levels the kinesthetic approach might prove more efficient for the instruction of disadvantaged students. As was noted previously, no statistically significant differences were found among methods of word recognition specifically for disadvantaged students. However, the general results suggest that the kinesthetic method is least effective of the four word recognition methods for all subjects, regardless of socio-economic status, race, and sex.

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[67] Reissman, "The Overlooked Positives of Disadvantaged Groups," loc. cit.

[68] Crow, et. al., loc. cit.

The Combination Method and Implications for Disadvantaged Students

None of the available literature suggested the use of a combination method with disadvantaged youth. The findings of the present research show that the disadvantaged subjects performed better on the combination method than they did on either the phonic or kinesthetic methods, but not as well as they did on the visual method. Since the combination method contained elements of visual, phonic, and kinesthetic approaches to word recognition, perhaps the relatively high mean score on the combination method by disadvantaged subjects can be explained as a result of their apparent preference for a visual approach, which is incorporated in the combination method.

Discussion of Findings Relative to Race

The decision to analyze the data according to race was made after the original analysis between disadvantaged and non-disadvantaged classifications had been completed. Since the disadvantaged category was composed mainly of Negro subjects, the difference found between the two socio-economic groups may have been precipitated by the racial composition of the two groups. The size of the sample prevented a further investigation of that possibility, however.

Explanation of Equal Variance for Between Subjects When Analyzed Either by Socio-Economic Status or by Race

The analysis of the data by race revealed effects of classification identical to those which had been found for the analysis by socio-economic status. Although the sums of squares for the effects of socio-economic status were different from the sums of squares for each cell in the classification for race, the total sums of squares were the same because the same data were used in each analysis, with the scores rearranged. In addition, the sums of raw scores for disadvantaged students were equal to the sums of raw scores for Negro subjects, while the sums of raw scores for non-disadvantaged students were identical to the sums of raw scores for white students. Since the sums of raw scores for each classification are used in the formula for computation of the analysis of variance, the final calculations reveal identical scores on the variance for between subjects.

Implications of Results for Both Races

A significant difference between the performance of Negro subjects and white subjects on the Mills Learning Methods Test was found, with white students having significantly higher mean scores on each teaching method as determined by *t* tests. White students tend to have higher word recognition scores regardless of the method by which they are taught.

No significant interaction between learning method and race was found; therefore, word recognition methods which are most appropriate for Negro students or white students were not identified by the investigation. An inspection of the data shows that for Negro subjects, the kinesthetic method had the least mean score and the visual method had the greatest mean score. White children had their greatest mean score on the visual method and their least mean score on the phonic method.

Discussion of Findings Relevant to Sex of Subjects

The analysis of the data by sex groups revealed a significant difference between the performance of males and females on the Mills Learning Methods Test. It was noted that the difference between the sex groups was significant at the .05 level, whereas the differences between disadvantaged and non-disadvantaged subjects and between Negro and white subjects were significant at the .01 level. The difference in the levels of significance suggests that a larger sample may have negated those differences which could be attributed to sex of the subject.

For each learning method, females earned statistically higher mean scores than did male subjects. Since the analysis failed to indicate a significant interaction between learning method and sex, the study did not find any word recognition method which is more effective for either of the sexes.

Difficulties Encountered with the Testing Instrument

There seemed to be some elements of the Learning Methods Test which may create confounding factors in research. The Learning Methods Test apparently makes the assumption that it is as easy for some children to learn primer level words as it is for other children to learn third grade level words. Such an assumption is questionable and could affect the results of research which employs the testing instrument. An additional question arose which involved the graded word cards. Even though the word cards were divided into levels of difficulty, some words were included in more than one level. The possible scores on each learning method, from zero to ten, placed a ceiling level on the scoring which could place limitations on the conclusions to be drawn from an individual's performance on the Learning Methods Test.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of the chapter is to present concise statements of the results of previous research, of the purposes for the present research, and of recommendations for future use. The chapter is divided into three main sections, the first of which is devoted to a summary of the research procedure and findings. The second main section presents the conclusions based upon the investigation. The last section treats recommendations for further research and for educational considerations.

SUMMARY

Several authors suggest that the learning styles of disadvantaged students are different from the learning styles of students whose families have adequate means. These authors contend that the public schools fail to make curricular or methodological adjustments which will result in academic advancements for disadvantaged students. Suggestions for improvement in the schools include provision of physical approaches, the use of kinesthetic methods, and the use of visual methods rather than aural approaches. Actual research in the academic potential of disadvantaged children has resulted in the conclusions that inadequate auditory discrimination is characteristic of disadvantaged children, that disadvantaged students tend to be more adept with visual decoding tasks, and that disadvantaged students tend to perform better with a visual method for word recognition.

The present research was undertaken in order to determine whether or not disadvantaged students, those whose family income was $3,000.00 per year or less, prefer a particular method of word recognition which is significantly different from the word recognition method which is most effective with non-disadvantaged students, those whose family income exceeds the $3,000.00 per annum income criterion. Forty students, twenty from each of the defined socio-economic groups, were randomly selected from the second grade students of Lincoln Parish, Louisiana, public schools. These subjects were individually administered the Mills Learning Methods Test. An analysis of variance, two-way classification, was computed on the obtained data. The original data were reclassified according to both race and sex of the subjects and additional analyses were computed.

The research did not indicate that there was one best method for teaching word recognition to disadvantaged children. The results did not indicate that a kinesthetic method to word recognition is superior for disadvantaged learners, as was theorized by various authors. The study indicated that the visual method was best for both disadvantaged and non-disadvantaged children. The fact that disadvantaged subjects in the present study tended to perform poorly on the phonic method did lend some support to the findings of previous research suggesting the inadequate auditory discrimination abilities of disadvantaged children. The kinesthetic method appeared to be the least effective method of teaching word recognition regardless of the socio-economic status, race, or sex of the subjects.

CONCLUSIONS

On the basis of the statistical analysis, the following conclusions seem warranted. The conclusions are divided into sets which correspond to the sets of hypotheses advanced in Chapter III of this paper. General conclusions are also listed.

Set I

1. There are significant differences among the four different learning methods. The visual method is significantly more effective than the phonic or kinesthetic method, regardless of socio-economic status, race, or sex of the subjects. The combination method is significantly better than the kinesthetic method, regardless of the socio-economic status, race, or sex of the subjects. The visual method for word recognition appears to be the most effective method for teaching seven-year-old children to learn new words. The kinesthetic method appears to be the least effective method of teaching second grade children to recognize new words.
2. There is a significant difference between the word recognition ability of disadvantaged children and non-disadvantaged children. The non-disadvantaged children perform significantly better than disadvantaged learners on each of the four learning methods of the Mills Learning Methods Test.

Children of adequate means tend to learn new words more efficiently regardless of the method by which they are taught than do disadvantaged children.

3. The research found no significant interaction between socio-economic status and learning method. The study indicated that disadvantaged children do not learn word recognition tasks significantly better through visual, phonic, kinesthetic, or combination methods. No one word recognition method seems most appropriate for disadvantaged children. Although disadvantaged children tend to learn new words less efficiently than do non-disadvantaged children, the present research does not offer support for the theory that disadvantaged children prefer a teaching method which is different from the teaching method that is most effective with non-disadvantaged. Disadvantaged children do not appear to have a learning style for word recognition which differs from that of non-disadvantaged children. Therefore, those methods of instruction which are effective for non-disadvantaged students should also be effective with disadvantaged students.

Set II

1. There is a significant difference between the performance of Negro students and white students in learning to recognize new words. White students seem to perform significantly more efficiently with all word recognition methods used in the Mills Learning Methods Test. Negro students

tend to perform with less efficiency than do white students regardless of the word recognition method used.

2. The research found no significant interaction between race and teaching method. Contrary to the opinion of some authors, no one method was found to be significantly more effective for Negro subjects than for white subjects. Negro students do tend to perform most efficiently when taught with a visual method. The performance of Negro students on word recognition tasks seems to be poorest when they are taught by a kinesthetic method. Although no best method of teaching white students was found, white students tend to learn more new words through a visual approach and fewer new words through the phonic method. The word recognition methods preferred by Negro students were not significantly different from the word recognition methods preferred by white students. Even though Negro students tend not to learn as well as white students on word recognition tasks, they seem to learn through the same methods as do white learners.

Set III

1. There is a statistically significant difference between the learning of new words by male students and female students. Female students achieve significantly higher mean scores on each of the four methods of the Learning Methods Test. Males perform less efficiently with word recognition tasks than do females, regardless of the method by which they are taught.

2. The research indicated no significant interaction between learning method and sex. Although male students learned more new words through a visual method than by any other method and fewer new words through the kinesthetic method than any other method, no method proved to be significantly better for males than for females. No method proved significantly superior for females. Female students achieved the highest mean score on the combination method and their lowest mean score on both phonic and kinesthetic methods.

In general, the visual approach appears to produce the most effective results as measured by the ability to recognize new words than any of the other methods on the Learning Methods Test. The kinesthetic method seems to be the least effective method of teaching word recognition to second grade children.

The results of the study indicate that the learning styles of disadvantaged students do not differ as much as has been suggested by various authors. The specific socio-economic, sex, and race characteristics of students do not appear to influence the methods of word recognition to which they will respond most readily and most efficiently.

RECOMMENDATIONS

The following are suggestions for further research relevant to the word recognition methods preferred by specific groups of children.

1. A study should be made with a larger sample which would facilitate the analysis of the effects of learning methods when presented to Negro disadvantaged subjects and Negro non-disadvantaged subjects. Such an analysis may yield an insight into the effects which are due to socioeconomic status and those which are due to race.
2. It is recommended that additional analyses of the effects of learning method be made when the Learning Methods Test is presented to the following groups of subjects.
   A. Disadvantaged white students and non-disadvantaged white students
   B. Negro disadvantaged subjects and white disadvantaged subjects
   C. Male disadvantaged subjects and female disadvantaged subjects
   D. Male disadvantaged subjects and male non-disadvantaged subjects
   E. Female disadvantaged students and female non-disadvantaged students
   F. Female Negro students and female white students
   G. Male Negro students and male white students.
3. It is recommended that future studies treat achievement and intelligence variables within the sample. Some measures of academic potential should be employed in equating the groups for comparison.

The following are recommendations with implications for educational practice. Since the data did not indicate that disadvantaged students prefer word recognition methods which are different from the methods preferred by non-disadvantaged children, it is recommended that educators examine the present programs of compensatory education for the philosophy upon which it is based and for the types of methodology which are advocated in such programs. It is further recommended that educators exert extreme caution in adopting commercial reading programs which rely heavily on kinesthetic or auditory approaches to the teaching of word recognition skills to disadvantaged youth, since the present research failed to find any indication that disadvantaged children possess learning styles which predispose them to more efficient learning by those methods.

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APPENDICES

APPENDIX A

LEARNING METHODS TEST -- RECORD FORM

Name: ____________ Date ____________ Grade ________

Sex ______ Age ______ I.Q. ________ Name of Intelligence Test ____________

Grade Level of Word-Cards Used: Primer ____ 1st ____ 2nd ____ 3rd ____

SET I. Method Used ____________

	Immediate	Delayed
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
TOTALS		

SET II. Method Used ____________

	Immediate	Delayed
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
TOTALS		

SET III. Method Used ____________

	Immediate	Delayed
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
TOTALS		

SET IV. Method Used ____________

	Immediate	Delayed
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
TOTALS		

Comments: ________________________________

Examiner: ____________ Institution: ____________

APPENDIX B

FREQUENCY DISTRIBUTION OF SCORES ON THE LEARNING METHODS TEST BY SOCIO-ECONOMIC GROUPS

APPENDIX B

EXHIBIT I

FREQUENCY DISTRIBUTION OF SCORES ON THE VISUAL METHOD BY SOCIO-ECONOMIC GROUPS

Score	Disadvantaged	Non-Disadvantaged
10	5	10
9	4	6
8	4	1
7	2	2
6	0	0
5	0	0
4	0	0
3	1	0
2	3	1
1	1	0
0	0	0
Total	20	20
Mean	7.47	9.37
Range	1-10	2-10
Standard Deviation	3.17	1.83

APPENDIX B

EXHIBIT II

FREQUENCY DISTRIBUTION OF SCORES ON THE PHONIC METHOD BY SOCIO-ECONOMIC GROUPS

Score	Disadvantaged	Non-Disadvantaged
10	5	5
9	2	9
8	2	4
7	2	0
6	1	0
5	1	1
4	1	0
3	0	1
2	1	0
1	2	0
0	3	0
Total	20	20
Mean	6.16	9.00
Range	0-10	3-10
Standard Deviation	3.88	1.73

APPENDIX B

EXHIBIT III

FREQUENCY DISTRIBUTION OF SCORES ON THE KINESTHETIC METHOD BY SOCIO-ECONOMIC GROUPS

Score	Disadvantaged	Non-Disadvantaged
10	1	6
9	6	6
8	1	3
7	2	1
6	1	2
5	3	0
4	0	1
3	2	1
2	0	0
1	3	0
0	1	0
Total	20	20
Mean	6.11	8.63
Range	0-10	3-10
Standard Deviation	3.30	2.04

APPENDIX B

EXHIBIT IV

FREQUENCY DISTRIBUTION OF SCORES ON THE COMBINATION METHOD BY SOCIO-ECONOMIC GROUPS

Score	Disadvantaged	Non-Disadvantaged
10	5	10
9	3	3
8	3	4
7	0	0
6	2	2
5	1	0
4	0	0
3	2	0
2	2	0
1	1	1
0	1	0
Total	20	20
Mean	6.79	9.05
Range	0-10	1-10
Standard Deviation	3.45	2.24

APPENDIX C

FREQUENCY DISTRIBUTION OF WORDS TAUGHT BY SOCIO-ECONOMIC STATUS, RACE, AND SEX

APPENDIX C

EXHIBIT I

FREQUENCY DISTRIBUTION OF PRIMER LEVEL WORDS TAUGHT BY SOCIO-ECONOMIC STATUS, SEX, AND RACE

WORD	Disad-vantaged	Non-Dis-advantaged	Males	Females	Negroes	Whites
apple	9	0	7	2	9	0
baby	9	1	8	2	10	0
ball	9	1	8	2	10	0
barn	9	1	8	2	10	0
bed	9	1	8	2	10	0
bird	8	0	7	1	8	0
box	7	1	6	2	8	0
boy	8	1	7	2	9	0
bread	9	1	8	2	10	0
cake	7	1	6	2	8	0
cat	7	1	7	1	8	0
chair	9	1	8	2	10	0
children	7	1	7	1	8	0
cow	7	1	6	2	8	0
dinner	8	1	7	2	9	0
dog	7	0	6	2	7	0
doll	9	1	8	2	10	0
door	8	1	7	2	9	0
egg	9	1	8	2	10	0
farm	9	1	8	2	10	0
father	9	1	8	2	10	0
four	6	1	5	2	7	0
girl	7	1	6	2	8	0

EXHIBIT I (Continued)

Word	Disad-vantaged	Non-Dis-advantaged	Males	Females	Negroes	Whites
head	7	1	6	2	8	0
hen	6	1	6	1	7	0
kitten	6	1	6	1	7	0
man	9	1	8	2	10	0
milk	8	1	7	2	9	0
mother	9	1	8	2	10	0
night	8	1	8	1	9	0
one	9	1	8	2	10	0
party	8	1	7	2	9	0
picture	8	1	7	2	9	0
pig	8	0	6	2	8	0
rabbit	5	1	4	2	6	0
school	7	1	6	2	8	0
store	6	1	6	1	7	0
table	6	1	5	2	7	0
tail	9	1	8	2	10	0
three	6	1	5	2	7	0
toy	9	1	8	2	10	0
tree	8	1	7	2	9	0
two	6	1	6	1	7	0
water	8	1	8	1	9	0
window	8	1	7	2	9	0

APPENDIX C

EXHIBIT II

FREQUENCY DISTRIBUTION OF FIRST GRADE LEVEL WORDS BY SOCIO-ECONOMIC STATUS, SEX, AND RACE

WORD	Disad-vantaged	Non-Dis-advantaged	Males	Females	Negroes	Whites
airplane	1	2	2	1	1	2
arm	3	2	3	2	3	2
automobile	7	2	5	4	5	4
basket	3	2	4	1	2	3
bear	2	2	2	2	1	3
bee	1	0	0	1	1	0
bell	6	1	4	3	3	4
birthday	5	3	4	4	5	3
boat	0	1	1	0	0	1
bowl	7	1	5	3	5	3
breakfast	6	2	4	4	4	4
butter	5	2	2	5	3	4
candy	4	3	4	3	3	4
chicken	5	1	4	2	3	3
Christmas	4	1	4	1	5	0
circus	3	1	2	2	2	2
city	3	2	2	3	2	3
clothes	5	1	3	3	3	3
clown	3	1	2	2	1	3
corn	2	2	2	2	3	1
cross	5	3	5	3	4	4
cup	0	1	1	0	1	0
dish	3	0	2	1	2	1
dress	5	2	4	3	3	4

EXHIBIT II (Continued)

WORD	Disad-vantaged	Non-Dis-advantaged	Males	Females	Negroes	Whites
duck	0	1	1	0	0	1
ear	6	3	5	4	5	4
elephant	5	2	5	2	5	2
eye	1	1	2	0	1	1
face	6	1	4	3	4	3
farmer	5	2	3	4	3	4
feather	4	2	4	2	4	2
feet	2	2	1	3	2	2
field	3	3	2	4	3	3
fire	2	4	4	2	3	3
fish	1	2	1	2	2	1
five	1	0	0	1	1	0
floor	2	2	3	1	3	1
flower	3	2	4	1	3	2
food	0	1	1	0	0	1
fourteen	5	2	4	3	4	3
frog	4	1	3	2	4	1
fruit	7	5	8	4	6	6
game	5	2	2	5	4	3
garden	2	2	1	3	2	2
gate	4	2	4	2	3	3
glass	2	2	1	3	2	2
goat	2	2	3	1	3	1
grandfather	1	3	2	2	3	1
grandmother	1	0	0	1	1	0
grass	3	3	4	2	2	4
hair	1	2	2	1	2	1
hand	6	2	4	4	5	3
hay	0	2	1	1	1	1

EXHIBIT II (Continued)

WORD	Disad-vantaged	Non-Dis-advantaged	Males	Females	Negroes	Whites
horse	3	2	3	2	3	2
house	2	2	2	2	2	2
leaves	7	1	4	4	4	4
leg	5	1	2	4	3	3
letter	3	2	2	3	2	3
light	2	3	3	2	1	4
lion	1	1	2	0	1	1
meat	6	3	6	3	6	3
men	4	0	2	2	2	2
money	6	2	5	3	4	4
monkey	3	2	2	3	4	1
mouse	5	0	2	3	3	2
mouth	5	4	7	2	5	4
nail	5	2	3	4	2	5
nest	1	1	1	1	2	0
nose	5	1	2	4	3	3
nut	0	1	0	1	1	0
orange	2	3	3	2	3	2
paint	4	1	1	4	1	4
paper	2	4	3	3	4	2
park	5	2	3	4	4	3
paw	4	3	5	2	3	4
penny	5	2	4	3	5	2
people	1	2	2	1	1	2
picture	4	2	3	3	4	2
plant	5	1	4	2	4	2
pocket	7	3	6	4	6	4
policeman	4	2	4	2	3	3
pony	2	1	1	2	1	2

EXHIBIT II (Continued)

WORD	Disad-vantaged	Non-Dis-advantaged	Males	Females	Negroes	Whites
puppy	5	1	2	4	3	3
rain	1	2	2	1	2	1
ring	5	2	2	5	3	4
river	4	1	2	3	2	3
road	3	3	3	3	3	3
robin	8	1	4	5	6	3
room	1	1	1	1	2	0
rooster	6	2	5	3	4	4
sand	3	1	2	2	2	2
seed	4	1	1	4	2	3
sheep	5	1	2	4	2	4
ship	3	2	3	2	3	2
shoe	7	1	4	4	5	3
sign	6	2	6	2	5	3
six	0	1	1	0	0	1
sky	4	0	2	2	2	2
sled	3	2	2	3	1	4
snow	2	4	4	2	3	3
squirrel	4	2	5	1	4	2
street	2	3	3	2	1	4
teacher	2	0	0	2	2	0
teeth	4	4	5	3	4	4
train	4	1	2	3	2	3
turkey	6	2	5	3	4	4
vegetables	5	2	4	3	5	2
wagon	2	2	3	1	2	2
wing	5	3	3	5	4	4
woman	2	0	0	2	1	1
wood	5	2	2	5	3	4
worm	6	1	3	4	4	3

APPENDIX C

EXHIBIT III

FREQUENCY DISTRIBUTION OF SECOND GRADE LEVEL WORDS TAUGHT BY SOCIO-ECONOMIC STATUS, SEX, AND RACE

WORD	Disad-vantaged	Non-Dis-advantaged	Males	Females	Negroes	Whites
arrow	1	3	1	3	1	3
baker	0	5	2	3	2	3
balloon	0	3	2	1	1	2
band	1	0	0	1	0	1
bank	1	2	1	2	1	2
bedroom	0	4	2	2	1	3
berries	0	6	3	3	1	5
blanket	1	3	3	1	0	4
block	1	2	0	3	1	2
body	0	2	1	1	1	1
bone	0	1	1	0	0	1
bottle	1	2	2	1	0	3
bow	0	5	2	3	1	4
branch	0	3	1	2	1	2
bridge	0	2	1	1	0	2
brook	1	0	0	1	0	1
building	0	2	1	1	0	2
bush	0	5	2	3	1	4
butterfly	0	5	2	3	2	3
button	1	1	1	1	0	2
cabbage	1	3	1	3	1	3
cage	0	5	2	3	1	4
calf	0	6	2	4	2	4
candle	1	5	3	3	1	4
card	1	5	3	3	1	4

EXHIBIT III (Continued)

WORD	Disad-vantaged	Non-Dis-advantaged	Males	Females	Negroes	Whites
carrot	1	2	1	2	0	3
chimney	0	5	2	3	2	3
clock	0	4	2	2	0	4
cloud	0	8	4	4	2	6
coal	0	6	2	4	2	4
crow	1	2	2	1	0	3
deer	0	1	0	1	1	0
doctor	1	5	3	3	0	6
eight	0	1	0	1	0	1
engine	1	2	2	1	0	3
fairy	1	2	1	2	0	3
fence	0	3	2	1	1	2
finger	0	7	2	5	2	5
forest	1	3	1	3	1	3
goose	1	2	1	2	0	3
handkerchief	1	5	2	4	0	6
heart	1	5	3	3	1	5
horn	0	4	2	2	0	4
hunter	1	2	1	2	0	3
Indian	0	3	1	2	0	3
kitchen	1	2	1	2	0	3
knife	1	4	3	2	1	4
ladder	0	5	2	3	2	3
lady	0	6	2	4	1	5
lake	1	2	1	2	0	3
lamb	1	0	0	1	0	1
lamp	0	5	2	3	0	5
lettuce	0	7	2	5	2	5
loaf	1	2	1	2	0	3
mail	0	5	2	3	0	5
market	0	9	4	5	2	7

EXHIBIT III (Continued)

WORD	Disad-vantaged	Non-Dis-advantaged	Males	Females	Negroes	Whites
moon	0	2	1	1	0	2
mountain	0	6	2	4	1	5
pail	0	3	1	2	1	2
path	1	2	1	2	0	3
peanut	0	7	3	4	2	5
picnic	1	1	1	1	0	2
pie	1	1	1	1	0	2
pipe	0	5	2	3	2	3
plate	0	7	2	5	2	5
pool	1	1	0	1	1	1
potato	1	4	3	2	1	4
pumpkin	1	0	0	1	0	1
radio	1	4	2	3	0	5
rake	0	1	1	0	0	1
ribbon	0	4	2	2	1	3
roof	0	2	0	2	1	1
sea	0	8	3	5	2	6
shadow	0	8	3	5	2	6
skate	1	2	1	2	1	2
stair	0	5	2	3	2	3
star	0	3	0	3	1	2
station	0	7	3	4	1	6
stove	1	4	1	4	1	4
sugar	1	3	1	3	0	4
suit	1	2	0	3	1	2
swing	1	2	1	2	0	3
telephone	0	4	3	1	1	3
thirteen	0	8	3	5	2	6
tiger	0	2	1	1	0	2
toes	1	3	1	3	1	3
turtle	0	4	2	2	1	3
twelve	0	6	3	3	2	4

EXHIBIT III (Continued)

WORD	Disad-vantaged	Non-Dis-advantaged	Males	Females	Negroes	Whites
twenty	0	5	2	3	2	3
umbrella	0	9	4	5	2	7
wheat	0	3	1	2	1	2
wheel	0	3	2	1	1	2
whistle	1	5	3	3	1	5
wolf	0	5	2	3	0	5
women	0	8	3	5	2	6

APPENDIX C

EXHIBIT IV

FREQUENCY DISTRIBUTION OF THIRD GRADE LEVEL WORDS TAUGHT BY SOCIO-ECONOMIC STATUS, SEX, AND RACE

WORD	Disad-vantaged	Non-Dis-advantaged	Males	Females	Negroes	Whites
ant	0	3	1	2	0	3
artist	0	3	0	3	0	3
attic	0	2	0	2	0	2
axe	0	2	0	2	0	2
bamboo	0	2	0	2	0	2
barrel	0	2	1	1	0	2
beach	0	2	0	2	0	2
beast	0	3	1	2	0	3
beaver	0	2	1	1	0	2
beetle	0	2	0	2	0	2
bench	0	2	0	2	0	2
blossom	0	3	1	2	0	3
buffalo	0	2	0	2	0	2
cabin	0	2	0	2	0	2
camel	0	3	0	3	0	3
camera	0	1	0	1	0	1
canal	0	4	1	3	0	4
castle	0	1	0	1	0	1
caterpillar	0	2	0	2	0	2
cattle	0	1	0	1	0	1
cherry	0	1	1	0	0	1
chief	0	1	0	1	0	1
circle	0	3	1	2	0	3
clover	0	2	1	1	0	2
club	0	1	0	1	0	1

EXHIBIT IV (Continued)

WORD	Disad-vantaged	Non-Dis-advantaged	Males	Females	Negroes	Whites
cord	0	2	1	1	0	2
cottage	0	2	0	2	0	2
cradle	0	2	1	1	0	2
curtain	0	3	1	2	0	3
diamond	0	4	1	3	0	4
eagle	0	1	1	0	0	1
elevator	0	3	0	3	0	3
eleven	0	4	1	3	0	4
envelope	0	3	0	3	0	3
fifteen	0	2	0	2	0	2
fifty	0	1	0	1	0	1
fireman	0	1	1	0	0	1
fork	0	2	0	2	0	2
forty	0	3	0	3	0	3
fountain	0	4	1	3	0	4
furniture	0	2	0	2	0	2
grocery	0	3	1	2	0	3
hammer	0	2	1	1	0	2
hawk	0	2	0	2	0	2
highway	0	1	1	0	0	1
insect	0	2	1	1	0	2
island	0	4	1	3	0	4
kettle	0	2	0	2	0	2
lantern	0	4	1	3	0	4
library	0	2	1	1	0	2
lily	0	2	0	2	0	2
lip	0	1	0	1	0	1
loaf	0	2	0	2	0	2
motor	0	3	1	2	0	3
napkin	0	1	0	1	0	1
needle	0	1	0	1	0	1
onion	0	4	1	3	0	4

EXHIBIT IV (Continued)

WORD	Disad-vantaged	Non-Dis-advantaged	Males	Females	Negroes	Whites
owl	0	1	0	1	0	1
package	0	3	1	2	0	3
peach	0	3	1	2	0	3
pencil	0	1	0	1	0	1
piano	0	3	1	2	0	3
pillow	0	2	0	2	0	2
pitcher	0	4	1	3	0	4
plow	0	2	1	1	0	2
plum	0	2	0	2	0	2
railroad	0	3	0	3	0	3
reindeer	0	3	0	3	0	3
sack	0	2	0	2	0	2
sailor	0	2	0	2	0	2
sandwich	0	2	1	1	0	2
shelf	0	1	0	1	0	1
sixteen	0	2	0	2	0	2
snake	0	2	0	2	0	2
soldier	0	3	1	2	0	3
stocking	0	3	0	3	0	3
sweater	0	3	1	2	0	3
sword	0	2	1	1	0	2
thread	0	2	1	1	0	2
toad	0	1	0	1	0	1
tongue	0	3	1	2	0	3
towel	0	3	1	2	0	3
trousers	0	3	1	2	0	3
tulip	0	3	0	3	0	3
whale	0	3	1	2	0	3
wigwam	0	2	0	2	0	2
witch	0	1	0	1	0	1

VITA

Jo Ann Vermaelen Dauzat, the daughter of Yvonne Mathews Vermaelen and Joseph Gustave Vermaelen, was born in Alexandria, Louisiana, on March 11, 1943. Upon graduation from Providence Central High School, Alexandria, Louisiana, in 1961, she entered Northwestern State College in Natchitoches, Louisiana. In January, 1965, she was graduated from Northwestern State College with a Bachelor of Arts Degree in elementary education. She entered the graduate school of Northwestern State College in January, 1965, and was graduated from that institution in May, 1966, with a Master of Arts Degree in elementary education.

She was married to Samuel Varner Dauzat in 1963. They have two sons, Samuel Scott, five years of age, and Jeffrey Joseph, four years of age.

During the school year 1965-1966, she taught eighth grade at St. Francis Cabrini Elementary School, Alexandria, Louisiana. From 1966 to 1968, she served as reading supervisor for Holly Springs Municipal School System, Holly Springs, Mississippi. In the Spring of 1967, she entered the graduate school of the University of Mississippi on part-time status to pursue further education in the area of reading.

In 1967, she accepted an Experienced Teacher Fellowship in reading. She was awarded an Advanced Master of Education degree in reading by the University of Mississippi in August, 1968.

In September, 1968, she entered the graduate school of Northeast Louisiana State College, Monroe, Louisiana, in order to pursue the Doctor of Education degree in elementary education.

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